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MINING

July, 1960

Volume 37, No. 7

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BUCKHANNON PIKE, CLARKSBURG, WEST VIRGINIA

COAL MINING

Vol. XXXVII July, 1960 No. 7

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Published by

Modern Mining Publishing Company

4575 Country Club Drive

Pittsburgh, Pa. Phone TU. 1-9411

P. F. JASIK, Publisher and Editor



Printed by

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Write for Bulletin E-702S

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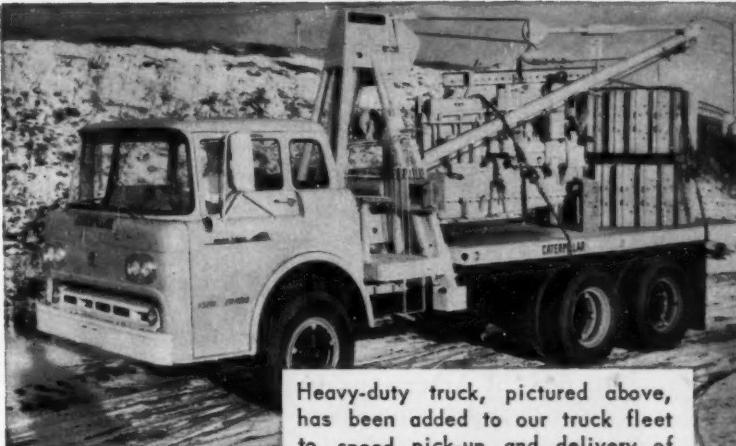
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When was the last time you looked at your rails, rollers or idlers? If you suspect that they are approaching wear limits, get in touch with us immediately. Perhaps they can last a while longer before being rebuilt, but don't take the chance that they will wear beyond economical rebuilt limits. We will be most happy to have a qualified Caterpillar technician check the wear limits on your track material...at no cost to you. He will also be prepared to explain why Beckwith can serve you better, faster and more economically. Don't wait until too late!

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Obsolescent Machines Belong On The Scrap Heap

• Most of the industrial progress in American industry came about because man's dreams triumphed over cautious reality. Vigorous, affirmative thinking in science and technology have prevailed. Science has given us technological progress that acquired status because it has contributed to better productivity and a better life for mankind. Staffed by able and optimistic individuals, responsible institutions are constantly evaluating and adapting scientific and technological tools to our industry, with results that are enriching us all far beyond the dreamiest dream of a sourdough prospector.

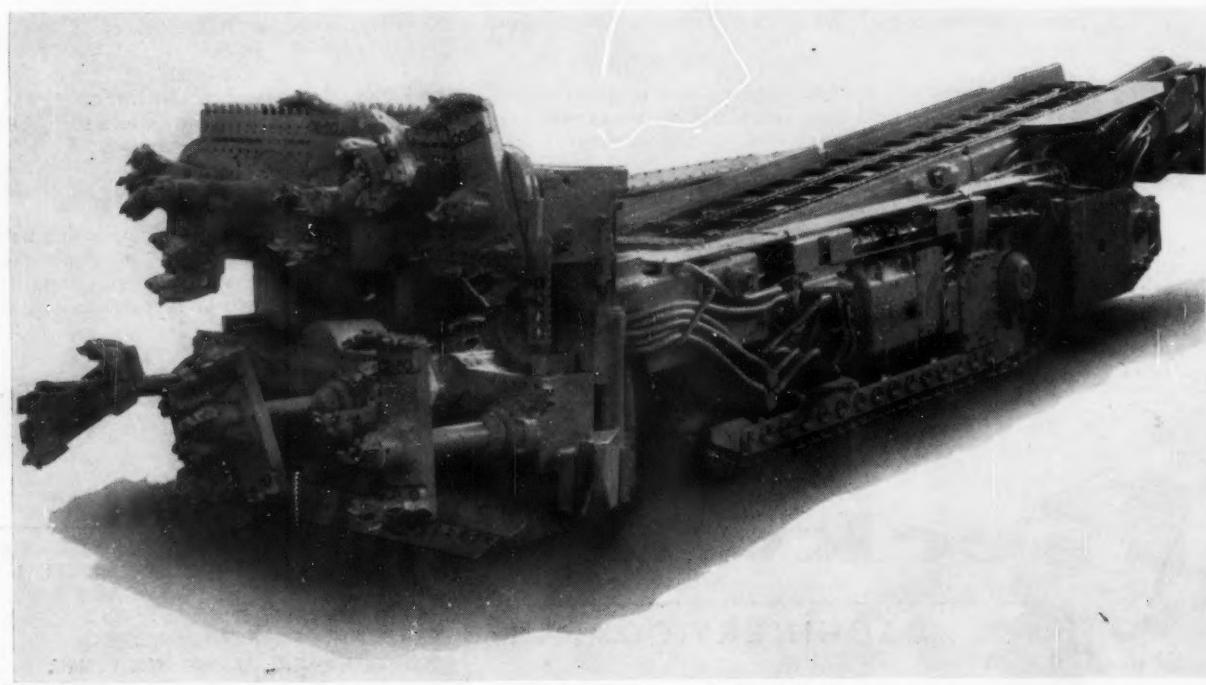
Scientific and technological progress has been a bonanza to American industry. It turned the Americans despair into hope and poverty into plenty. The coming automation in industry will make the American a superman.

Most American industrial advance came through optimistic disregard of consequences of failure, through intuitive grasp of opportunity beyond statistical need, by individuals who backed their cast with resolution, courage and faith. Dreams are individual, personal and exclusive property.

Faith, courage and resolution respond to intuitive inspiration.

With all its wonders over manual operation, if not constantly advanced, technology has its limitations, the greatest limiting factor being obsolescence. Machines, unlike bodies of men who create them, do not have the means to correct themselves. Old type machines cannot always be retrained to do the newer type work and are very susceptible to obsolescence. Machines lack the resiliency which man has acquired in order to survive, through centuries of existence. Machines cannot orient themselves from day to day; they cannot rise from the floor to start another day anew. No machine has yet been devised that has acquired human virtues of courage, faith and resolution in the face of adversity.

By not installing newer and better machines when they are available, short sighted management putting its whole trust into outmoded methods and equipment, mistakenly thinking it can hold back obsolescence. Sooner or later short sighted management discovers that outmoded machines always end up on the scrap heap where they belong.



Late Type, High Production, Jeffrey Colmol

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Hough H90 and two HOD Payloaders loading out coal for Scutta Coal Co.

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"Our Payloaders reduce costs for loading, pick up, and transport. They're very flexible and easy to handle," says Bob Scutta.



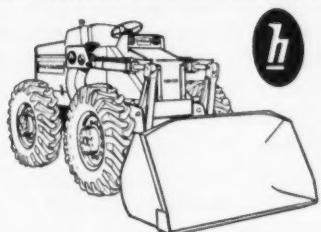
Tremendous breakout force of the Hough design gives all the power needed for any normal job.



*Mr. Robert Scutta, President, Scutta Coal Company

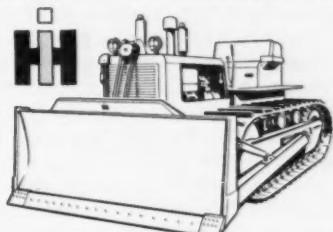
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Do You Know

• The future will see a lightweight device that people can wear and use to see and talk with anyone, anywhere, even on the opposite side of the world or high above in space, Dr. Paul A. Siple, explorer and U. S. Army Research Officer adviser, predicted to the National Science Fair.

Faster air, water and ground transport was also foreseen by Dr. Siple. To accomplish this will require stronger, lighter, and more heat resistant metals and ceramics, better fuels, lubricants and batteries linked with better vehicles, roads and airports.

Scientists of the future will learn to synthesize food, fuel, clothing and shelter out of the elements carbon, oxygen, hydrogen and nitrogen, he predicted.

New weather satellites will give accurate world-wide forecasting.

* * *

• Cleanliness may be next to Godliness but soap sometimes causes people trouble, Dr. F. Ray Bettley, physician for diseases of the skin at Middlesex Hospital in England suggests. He reports studies showing that soap may increase skin permeability and thus allow alkali to reach and irritate cells below the surface of the skin (malpighian cells).

Thus, barrier creams that have soap bases should not be used by industrial workers, Dr. Bettley reports in the June 4 issue of the British Medical Journal. The creams, far from preventing industrial dermatitis, may substantially increase the risk.

Dr. Bettley also reports a series of experiments that indicate less harmful effects to the deep cells of the skin from certain detergents.

He says commercial soaps have generally good antiseptic properties but perhaps more important than this is their ability to wash away the germs on the surface of the hands.

Washing with soap tends to destroy the self-sterilizing power of the skin by lowering its acidity, Dr. Bettley says, but also leaves behind a deposit that may in some degree make up for the loss.

The various effects of washing with soap are antagonistic, he points out, and says that furunculosis (associated with boils) commonly affects the areas of the skin that are washed most frequently. The avoidance of shaving soap is often sufficient to cure folliculitis, a disease of the hair glands.

However, Dr. Bettley has used a cleanser composed of five percent toilet soap and five percent potassium palmitate in the treatment of eczema and other skin diseases. Over a period of one month, patients, nurses and doctors found no ir-

HERE AND THERE IN THE COAL INDUSTRY



George N. White



William A. Voelzke



John Guentner

• The Pittsburgh branch of State Equipment Company, distributors of International Tractors, Hough Pay-loaders, and other lines of earth-moving equipment, has made three recent additions to their personnel.

Mr. George N. White, new assistant manager, has been an engineer at Mt. Wilson Observatory in California and assistant to the chief engineer on the 200 inch telescope project at Cal Tech. He also has been co-ordinating engineer at Los Angeles shipyard, and was most recently employed by North Atlantic Constructors, Graziano Construction Company and by other contractors in the Pittsburgh area. Mr. White resides in Bethel Park, Pennsylvania. He is the father of five grown children, all of whom are married.

Mr. William A. Voelzke, who was formerly employed by John Casey Company as Machine Shop Foreman and by Atlas Equipment Company for twelve years, is the Pittsburgh branch's new service manager. He resides in the North Hills section of Pittsburgh and is married and has three small children.

ritation except when the cleanser was used in contact with ulcerated surfaces.

"I do not wish to imply that soap plays no part in hand eczemas," he wrote, "but the observations I have mentioned indicate a need for caution in arriving at general conclusions."

In the case of housewives who use soap, he says he has found no proof that irritation results, and "the effect of rubber gloves is often, I think, clearly more harmful still."

Formerly employed by Foto Shop and Branco Display Company, Mr. John Guentner is the branch's new sales office trainee. Mr. Guentner was a radioman in the Army, speaks and writes French fluently and is soon to be married to a young lady he met in France while in the service.

• Bituminous Coal Research, Inc. plans to build an \$875,000 central coal research laboratory in the Pittsburgh suburb of Monroeville, Pa., consolidating research facilities now maintained in Pittsburgh and Columbus, Ohio.

BCR also elected five new members and reelected four members to its 15-man board of directors. Terms of six other members run until 1961.

The new members are: B. R. Gebhart, vice president, Freeman Coal Mining Corp., Chicago, Ill.; Harry LaViers, president, South-East Coal Co., Paintsville, Ky.; E. B. Leisenring, Jr., president, Stonega Coke & Coal Co., Philadelphia, Pa.; H. C. Livingston, president, Truax-Traer Coal Co., Chicago, Ill.; and S. F. Sherwood, president, Stonefort Coal Mining Co., Inc., Indianapolis, Ind.

Reelected are: R. E. Dean, vice president, Ayrshire Collieries Corp., Indianapolis, Ind.; C. R. Mabley, Jr., president, Island Creek Coal Sales Co., Huntington, W. Va.; Joseph Purseglove, Jr., vice president, Consolidation Coal Co., Pittsburgh, Pa.; and C. F. Spencer, manager of industrial sales, Pittsburgh & Midway Coal Mining Co., Kansas City, Mo.

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Lou Lenz, a veteran of 15 years Highway service, is Pittsburgh used-equipment manager. For 10 years, Mr. Lenz was a sales representative in Highway's Clearfield territory, working with leading mines, industrial plants and construction firms.



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A-2292A



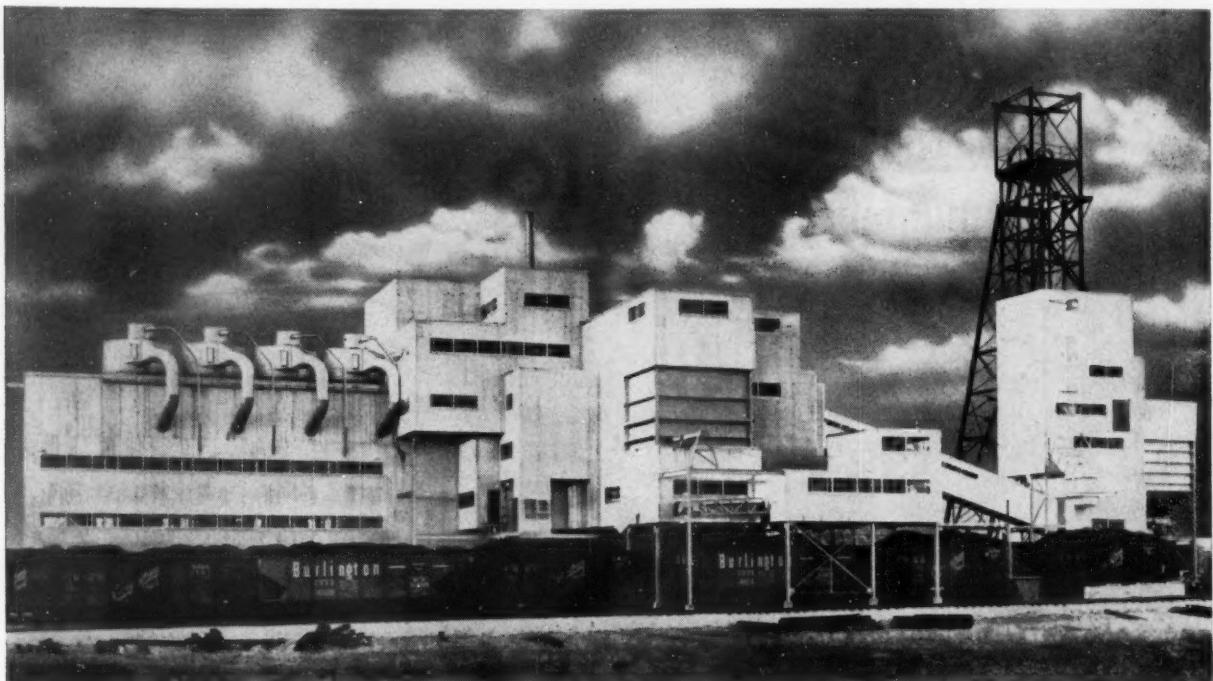
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Standing five stories above the surrounding countryside, the Roberts and Schafer preparation plant of Mine No. 21 contains the machinery to crush, screen, wash, dry-clean, blend, and load 15,000 tons of low-sulfur metallurgical coal daily.

Old Ben Mine No. 21 Near Benton, Ill.

- Owned and operated by the Old Ben Coal Corporation, Chicago, the mine, No. 21, taps a reserve of 100,000,000 recoverable tons of low-sulfur coking coal, 670 feet below the surface.

The coal is expected to meet the growing needs of the Midwest's rapidly expanding steel industry, as the needs of utilities, factories, and domestic users.

By 1962, Mine No. 21 is expected to be producing 3 million tons a year, making it one of the largest bituminous coal mines in the United States.

Designed for continuous mining and processing of coal, the mine makes maximum use of present automated equipment. From the time the coal is bored from the seam until it tumbles into waiting rail cars and trucks, it is handled almost completely automatically. Mine equipment includes:

—Continuous boring machines that chew a 7 x 13-foot face into the solid coal at the rate of 8 to 10 tons per minute.

—Ceiling-hung belt conveyors that speed the coal to the coal hoist bin.

—A double skip hoist that measures out a 10-ton load and dumps it into the breaker-house, without human control.

—Blending conveyors that mix six standard sizes in any desired combination at the touch of a button.

—An electronic recorder that stamps out the net weight of coal in rail cars on a scale 600 feet away while a remote TV camera lets the weighman note the car numbers.

By the end of 1962, Mine No. 21 is expected to be operating at its top capacity of 15,000 tons daily. At this rate, the mine's reserve is expected to last between 30 and 40 years. The 100,000,000 tons of recoverable coal is the largest commercially available tonnage of low-sulfur metallurgical coal remaining in Illinois.

The reserve was purchased in 1918. Development began with the sinking of the first shaft in April,

1956. The first coal was hoisted on January 4, 1960.

Underground, the mine looks like a subway tunnel. Continuous boring machines make 7-foot high x 13-foot wide entries. The walls being arched for roof support.

When the mine is in full production, eight continuous boring machines are expected to be in operation.

Production is carried by shuttle cars to belt conveyors, to a main conveyor which in turn transports the coal to a 100-ton storage bin at the bottom of the coal hoist shaft.

An electronic mechanism measures out 10 tons of coal into a loading pocket. When the coal skip reaches the bottom of the hoist shaft, the loading pocket discharges the coal into the skip. The skip is then raised automatically.

The hoist shaft in which the skips travel also serves the air downcast for mine ventilation. A 144,000 c.f.m. fan on the air compartment of the man and material shaft exhausts air continually from the



The 7 x 13-foot entry was driven by a continuous mining machine. Roof is left arched. Note the roof bolts which bind the overlying rock strata.

The boring-type continuous miner is rated at 8 to 10 tons per minute.

mine, drawing fresh air down through the hoist shaft.

The coal is crushed to a maximum size of 6 inches, then is carried at the rate of 800 tons per hour on a conveyor belt to the preparation plant.

The preparation plant of Old Ben Coal Corporation's Mine No. 21, which was put into operation early in 1960, is a joint effort of careful planning between Roberts & Schaefer Company and Old Ben to make both companies justifiably proud of a job well done.

The buildings are housed with aluminum siding, U.S. Gypsum roofing, and the structural steel painted with aluminum paint to produce a structure of flashing appearance.

The raw coal is conveyed from under ground by two Connellsville skips of 15 tons capacity each and brought to the surface by an automatic electric hoist. The above surface structure consists of a head frame to provide for automatic dumping of the skips as well as screening, crushing, and handling of mine rock.

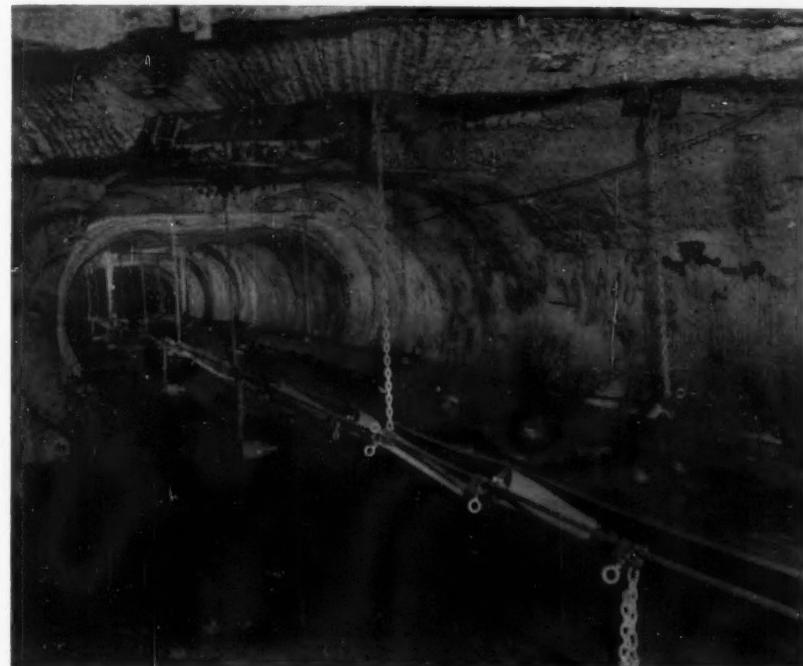
The skips dump into a bin provided with an air-operated gate used to divert mine rock, when coal is not being hoisted, into a rock bin for truck disposal. The coal is fed from the bin by a reciprocating feeder over which is suspended a magnet

for removing tramp iron. This feeder discharges to a 6'-0 x 16'-0 single deck Gyrex screen for scalping off the plus 6" lump which pass to a 24" x 60" crusher. The minus 6" coal from the Gyrex screen combines with the crushed coal from the crusher to be processed in the Preparation Plant or diverted to a future storage pile.

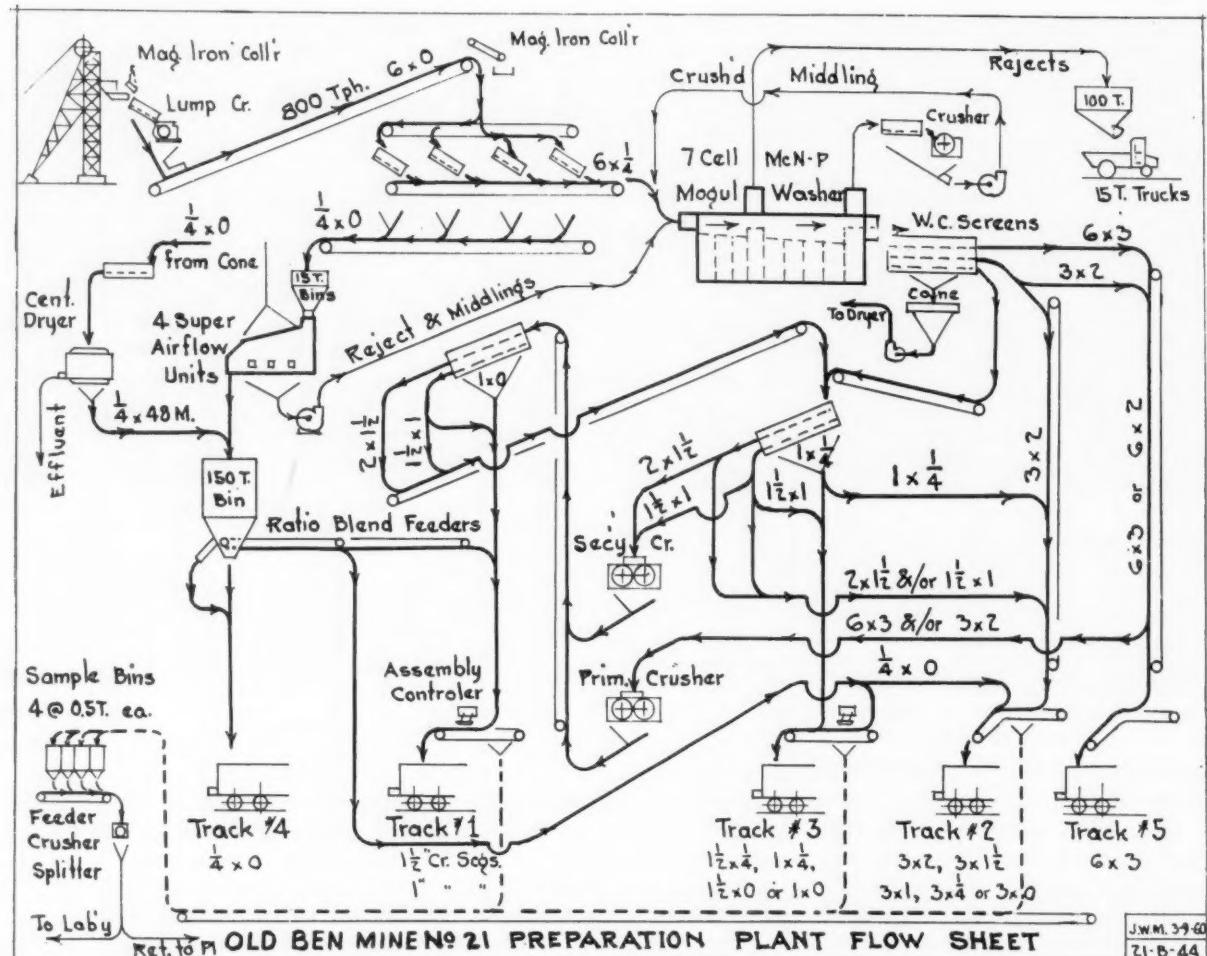
An air operated gate is also installed in the chute from the recipro-

cating feeder to divert the coal from the Gryex screen to a chute for direct rail loading of mine-run coal should the occasion demand.

The 800 t.p.h. 6" x 0 raw coal feed to the preparation plant is carried on a 48" wide belt conveyor discharging to four Double Deck Gryex screens fed by a flight distributing conveyor. At the head end of the raw coal belt conveyor is a 42" wide in-line magnet for a secondary re-



Roof-suspended ropebelt conveyor is used to transport the coal from the entries, to the 100 ton storage bin for hoisting to the coal hoist.



The two 24-inch belt conveyors shown carry 6 x 2 and 3 1/2 x 2 clean coal from the screens for primary crushing in a 36 x 60-inch Gearmatic crusher. At far right is a 2 x 1/4 coal flight conveyor.

oval of tramp iron.

The sized 6" x 1/4" product from the four Gryex raw coal screens is discharged to a 42" wide Belt Jig Feed Conveyor for conveying to a 96" wide Baum Type Jig. This jig, having three primary cells and four secondary cells, discharges a primary refuse to a 100-ton refuse bin and a secondary middlings product to a 5'-0 x 8'-0 Single Deck Vibrex screen for removal of the minus 1".

The minus 1" may go to either a middlings sump or to the refuse bin. The plus 1" middlings is crushed to 1" by a Rolling Ring crusher, and this crushed product is gathered in the middlings sump. An Allis-Chalmers 8" x 6" CWG middlings pump recirculates the crushed middlings back to the jig feed.

The clean coal from the jig is sluiced over two stationary dewatering screens, and dressed with B-Z

Tri-Rod screen having 3 mm openings, for delivery to two 6'-0 x 16'-0 triple deck Eliptex dewatering screens. The top decks discharge a 6" x 3½" size, the second decks, a 3½" x 2" size and the third a 2" x 1¼" size.

The minus 1¼" combines with the through product from the stationary dewatering screens for delivery to a fine coal settling cone. The fine coal underflow from the settling cone is pumped by a Barrett-Haentjens 5" TS pump to a 5'-0 x 12'-0 single deck Eliptex dewaterizer for removal of the minus 28 mesh.

The plus size reports to a Bird-Humboldt Dryer for centrifugal drying and then to a 150-ton clean coal bin by means of a 36" wide belt conveyor. The Bird Dryer may be bypassed for direct loading to the 36" clean coal belt should the necessity demand.

The minus 23 mesh is pumped to a settling pond together with the Bird Effluent by a Barrett-Haentjens 4" D-6BL pump. The clarified overflow from the fine coal settling cone is used as Jig make-up water delivered by an Allis-Chalmers 14" x 12" CWE pump.

The minus 1¼" size from the four Gryex raw coal screens is air washed by four Roberts & Schaefer 8'-0 x 12'-0 Super Airflows. Auxiliary equipment used in this process includes Chicago Blower Corp. Pres-Fans, Exhaust Fans and Recirculating Fans and Raymond 14'-0 dia. Cyclone Dust Collectors with Crites Tubes.

The clean coal from the four Super Airflows is gathered and conveyed to the 150-ton clean coal bin. The first and second draws from the Super Airflows report to refuse or maybe Recirculated to Jig feed. The third draws are also recirculated to jig feed while the fourth draws are recirculated as dry middlings back to the Raw Super Airflow feed.

The dust from the cyclones may report either to clean coal or refuse. Should the necessity demand, the Super Airflow section may be bypassed completely or partially. Provision has also been made for future

heat drying of the 1¼" x 0 raw coal prior to being processed in the Super Airflows.

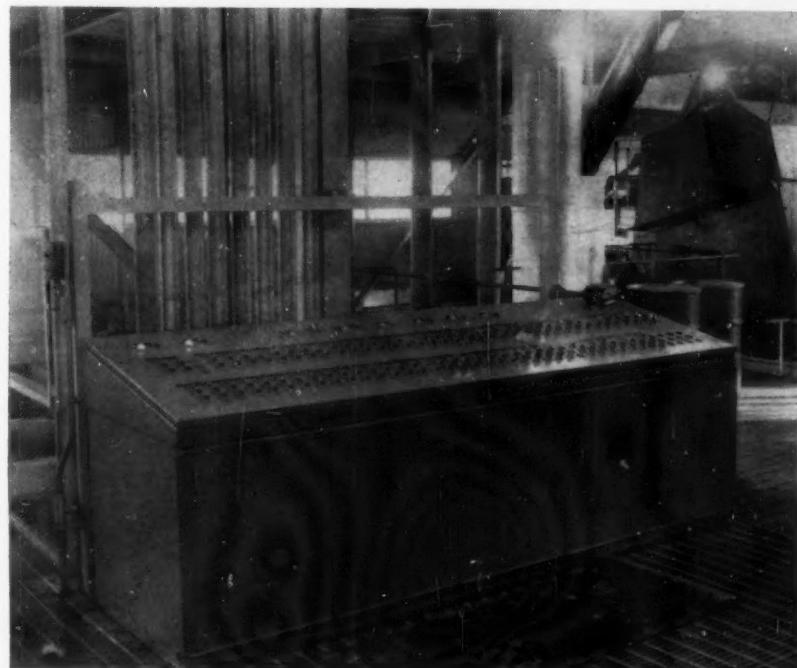
Crushing and Screening Circuits.

The 6" x 2" clean coal from the

two Triple Deck Eliptex Screens may be diverted to a 24" wide clean coal belt conveyor for primary crushing in a 36" x 60" gearmatic crusher. The 2" x 1¼" clean coal



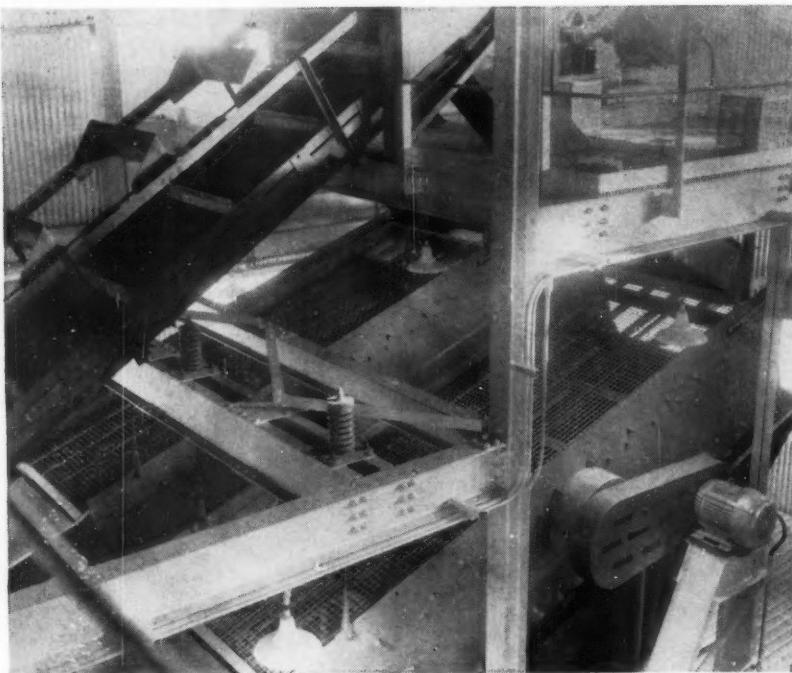
View of pressurized control room shows two of the four control centers containing starters for all motors in Mine No. 21's preparation plant.



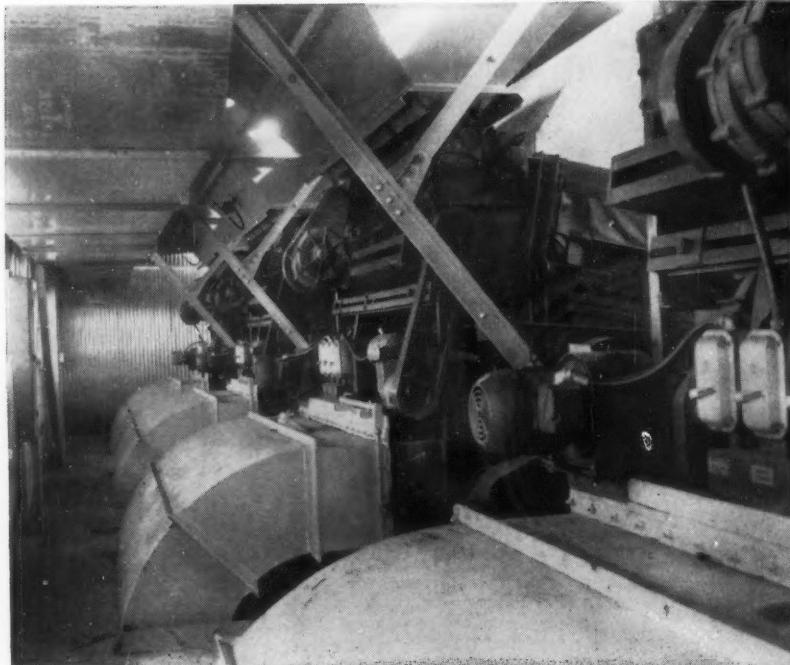
This control panel on the jig floor of the preparation plant enables the operator to regulate all plant operations from a single position. All of the plant except the loading gates and sampling are controlled from this panel. A second panel for loading

from the Eliptex screens is conveyed by a flight conveyor to two double deck 6'-0 x 16'-0 Vibrex

screens. These screens are dressed for producing a 2" x $\frac{3}{4}$ " size which may be diverted to a 36" x 60" Gear-



From two triple deck Eliptex screens, clean 2 x $\frac{1}{4}$ -inch coal is carried by flight conveyor (left) to two double-deck 6 x 16-foot Vibrex screens. These screens are dressed for producing a 2 x $\frac{3}{4}$ " size coal, which may be diverted to a 36 x 60-inch Gearmatic crusher for secondary crushing.



Minus $\frac{1}{4}$ coal from the raw coal screens is air washed by these four Roberts and Schaefer 8 x 12-foot Super Airflow units. Clean coal is then gathered and conveyed to the 150-ton clean coal bin. First and second draws reports to refuse or are recirculated to jig feed. Third draws are recirculated for jig feed, while fourth draws are recirculated as dry middlings back to the raw Super Airflow feed.

matic crusher for secondary crushing.

The combined primary and secondary crushed coal is conveyed by a flight conveyor to two double deck 6'-0 x 14'-0 Vibrex screens dressed for a 1 $\frac{1}{2}$ " top deck separation and 1" bottom deck separation. The total 1 $\frac{1}{2}$ " x 1" product may be recirculated for further refined crushing in the secondary crusher.

Loading Circuit.

Clean coal may be loaded on five tracks. Track #1 is serviced by a loading flight conveyor for 1 $\frac{1}{2}$ " x 0 or 1" x 0 sizes. This loading conveyor contains an ingeniously devised arrangement whereby a constant ratio of $\frac{1}{4}$ " x 0 clean coal is drawn from the 150 ton $\frac{1}{4}$ " x 0 clean coal bin by a measuring feeder conveyor driven by a Reeves Motodrives unit.

Track #2 is serviced by a loading boom for 3 $\frac{1}{2}$ " x 2", 3 $\frac{1}{2}$ " x 1", 3 $\frac{1}{2}$ " x $\frac{1}{4}$ ", 2" x 1 $\frac{1}{2}$ " or 1 $\frac{1}{2}$ " x 1" sizes.

Track #3 is serviced by a Loading Flight Conveyor for 1 $\frac{1}{2}$ " x $\frac{1}{4}$ ", 1" x $\frac{1}{4}$ ", 1 $\frac{1}{2}$ " x 0 or 1 $\frac{1}{4}$ " x 0 sizes. This conveyor also is equipped the same as #1 Loading Conveyor with a device for controlling the ratio of $\frac{1}{4}$ " x 0 clean coal from the 150 ton $\frac{1}{4}$ " x 0 clean coal bin by means of a measuring feeder conveyor driven by a Reeves Motodrive.

Track #4 is loaded only from the 150 ton $\frac{1}{4}$ " x 0 clean coal bin by means of a chute located on the bin side or from the bottom of the bin.

Track #5 is serviced by a loading boom fed by a 24" wide belt conveyor for 6" x 3 $\frac{1}{2}$ " size.

All of the clean coal products being loaded are controlled by air-operated gates from a central location.

Sampling Circuit.

Clean coal samples are gathered from points at Tracks #1, #2 and #3 by a sample flight conveyor for delivery to four sample bins. These samples are taken from the bins by a 12" wide crusher feed belt conveyor for crushing in an American Hammermill. Excess crushed samples are elevated for delivery to the fine coal settling cone.

Heating System.

An E. K. Campbell hot air furnace rated at 7,800,000 BTU per hour provides heat for the various locations in the plant. The hot air is blown through a system of metal ducts by a large fan. The furnace is stoker fired.

Electrical.

There are 92 motors totalling 1730 h.p. in the plant. The 440 volt, 60 cycle, 3 phase power was obtained from two 100 KVA 2300 to 440 volt, 60 cycle, 3 phase, transformer banks mounted on the roof of the preparation plant adjacent to the control room.

The starters for all motors were installed in four control centers located in the pressurized control room.

The plant is operated from two positions, one at the jig floor and the second in a cab over the loading tracks. All of the plant except the loading gates and sampling are controlled from the jig operators panel.

Interlocking was provided to assure proper starting order and automatic shut-down of all units following a motor which has stopped because of overload of power failure.

Each of the Roberts and Schaefer Super Airflow cleaners and related fans are controlled automatically by the low level indicators in respective surge bins. This permits the operation of each airflow in the most efficient manner by maintaining its bed of coal.

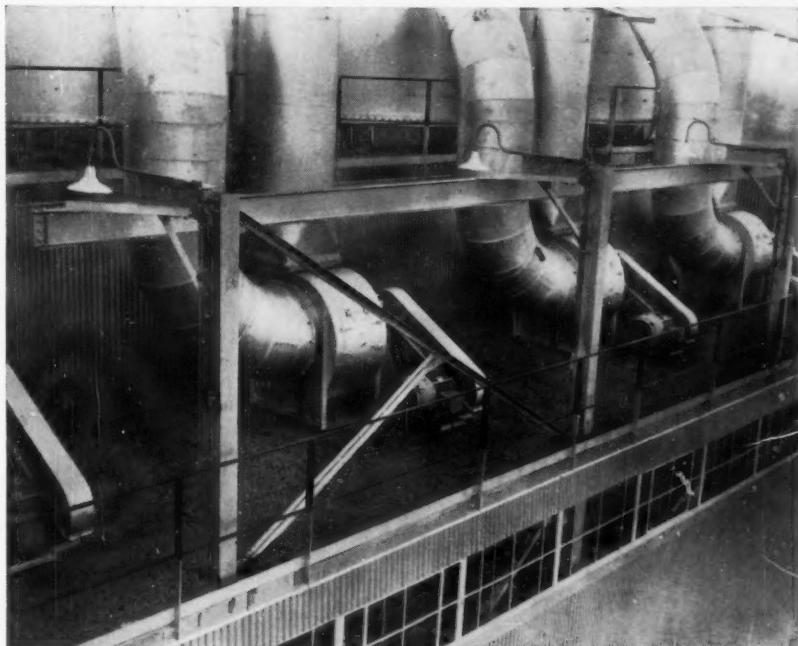
The loader operator controls the sampling on tracks, #1, 2 and 3. This is done by pushing the pushbutton designated for the desired track which sets up the gates and sampling gate so that the sample is taken and dispatched to the proper sample bin. After a determined period of time, certain gates are closed in order to eliminate contamination of the coal samples.

Air-operated gates on each track are controlled electrically by solenoid valves which enables the loader to select remotely the proper loading point on each track. On tracks #1, 2, and 3 there are three loading points which are as follows: Normal position, Car Changing Position, and

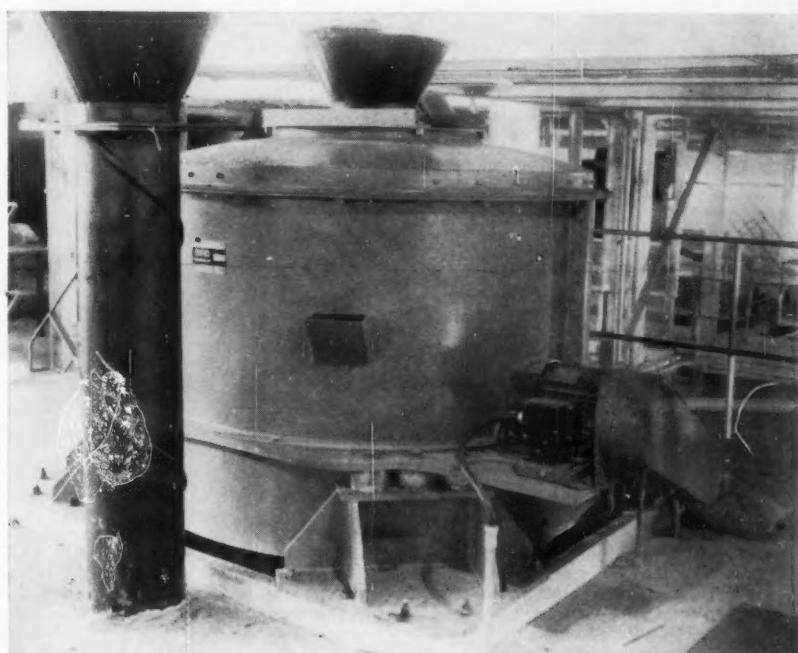
Diesel locomotive bypass position. The loader can select any one of these positions on each track by the depression of one pushbutton which shifts all the gates required for loading at the selected car position.

Each track loading position is indicated on the loaders panel by indicating lights connected by a red Miler tape which shows the flow of coal.

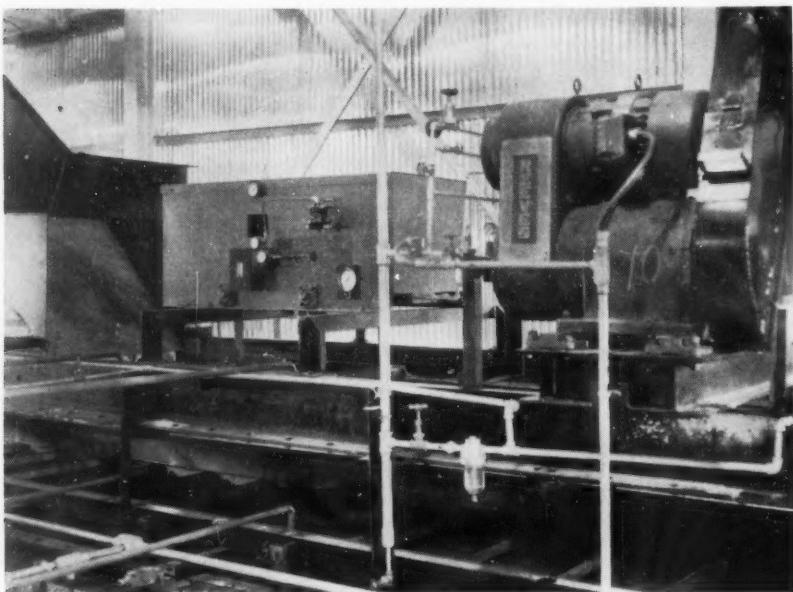
The lighting of the plant is by



These exhaust fans on the roof of Mine No. 21's preparation plant draw off the coal dust from the Super Airflow dry-cleaning units. The dust is collected in 14-foot Cyclone dust collectors with Crites tubes.



Coal larger than $\frac{1}{4}$ is centrifugally dried in this Bird-Humboldt dryer after being washed and dewatered. It then goes to a 150-ton clean coal bin by means of a 36-inch wide belt conveyor. The dryer may be bypassed for direct loading to the belt if necessary.



This measuring feeder automatically maintains the ratio of $\frac{1}{4} \times 0$ clean coal when loading $1\frac{1}{2} \times \frac{1}{4}$, $1 \times \frac{1}{4}$, $1\frac{1}{2} \times 0$, or $1\frac{1}{4} \times 0$ sizes.

open type RLM 150 watt incandescent lighting fixtures. The lighting supply is four wire 208Y-150 volt, 3 phase, 60 cycle. Most of the lighting in the preparation plant can be turned on by a pushbutton located at each entrance to the building. This pushbutton controls contractors in the various lighting panels distributed around the plant.

The majority of the lighting fixtures are suspended by rubber cord which has a twist lock plug and receptacle for easy removal for repairs and cleaning.

Rigid galvanized conduit and stranded wire was used throughout for power and light wiring. Approximately 33,000 ft. of conduit of various sizes and 212,000 ft. of wire from size #14 to 500,000 CM was used in the entire installation.



Stephen F. Dunn, president of the National Coal Association, tells a Washington radio audience that bituminous coal plays an important part in fuel supply for the nation's capitol. Mr. Dunn, appearing on the "Capitol By-Lines" program over station WRC, explained to Hostess Inga Rundvold (seated) that the government's central heating plant uses as much as 1,000 tons of coal daily in cold weather, and Potomac Electric Power plants in the Washington area consume more than 2 million tons a year. Coal consumption for electric power generation in Maryland, Virginia and the District of Columbia will rise from the present 9 million tons to 14 million by 1965, Mr. Dunn predicted.

Present at the broadcast was Miss Pat Coryell (standing), daughter of Glen Coryell, director of field engineers for the Bituminous Coal Institute division of the National Coal Association.

Miss Coryell is an assistant program director at WRC, the National Broadcasting Company's radio outlet in Washington.

- A new illustrated bulletin, descriptive of Velvetouch Feramic clutch plates and facings, is announced by The S. K. Wellman Co., Cleveland.

Features include a complete explanation of how plates and facings are made and where they are used. Velvetouch Feramic is a friction product, pioneered, developed and manufactured exclusively by Wellman. There are Velvetouch Feramic plates and facings for tractors, all types of construction machinery, mining and earthmoving equipment, trucks, buses, transports, military tanks, material-handling equipment, machine tools, industrial equipment — practically everything that rolls, floats, flies or involves mechanical motion.

Among advantages claimed by the manufacturer are increased clutch life, improved performance, elimination of slipping and chattering. Velvetouch Feramic plates and facings are also said to reduce vehicle downtime, cut down on adjustments, make installation easier and give lower per-mile costs.

For bulletin copies, see any Velvetouch wholesaler. Or write The S. K. Wellman Company, 200 Egbert Rd., Bedford, O. Ask for L-1391A.

NOW!
3 NEW SERIES

**CATERPILLAR
MOTOR
GRADERS**

Caterpillar's policy of continued product improvement now brings three new series motor graders—broadening the line to fill your particular needs. New, compact heavy-duty engines, other important improvements, and the long list of retained features make Cat Motor Graders the continued leaders in the field.



new series
CAT
MOTOR
GRADERS
with compact engines

The new look in Cat equipment continues with the introduction of three new series motor graders. If you own older equipment, take time to compare it with new Caterpillar products. You'll find the increased working capacities and reduced maintenance costs can mean more profit potential.

*select the
size to fit
your needs*





NEW... No. 12

SERIES E

115 HP

NEW... No. 112

SERIES F

100 HP

(Turbocharged)

NEW... No. 112

SERIES E

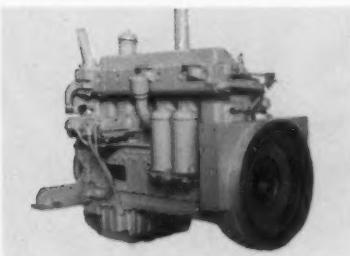
85 HP

These new motor graders, together with the 150 HP No. 14 Series B, offer the right size machine to fit your particular needs. New series motor graders feature new, highly efficient engines with greater lugging ability at low engine RPM. Improved design makes the engine more compact and affords greater durability. Engine improvements include: Shorter, stiffer block and crankshaft for greater strength and shock resistance • 20% greater radiator capacity for improved cooling • Larger, improved water pump

- New starting engine for positive, all-weather starting. Oil clutch and dry-type air cleaner are now standard on all models. Retained features include: In-seat starting and excellent visibility • Positive mechanical controls for instant response and accurate blade control • Optional power steering for operating ease.

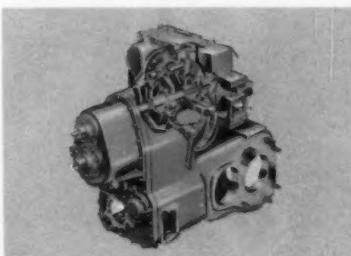
Ask your Caterpillar Dealer for a demonstration of this greater capacity in motor graders. See for yourself how they "pull through" tough going!

Update your Motor Grader spread with these features



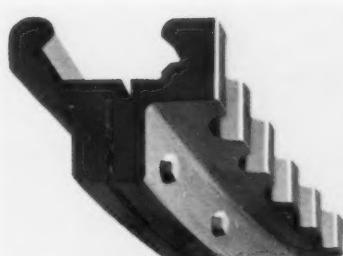
Engines with bonus staying power

New series Cat Motor Graders have newly designed 4-cycle, overhead valve, diesel engines. Torque characteristics are improved. Dry-type air cleaner, choice of starting systems.



Long lived Oil Clutch

Now standard on all Caterpillar Motor Graders, the exclusive Cat-built Oil Clutch operates up to 2,000 hours without adjustment. Outlasts all other clutches as much as 5 to 1.



Split, curved Side Shift Rack

Side Shift Rack is split to compensate for wear and provides positive contact of the rack with control gears. An exclusive feature on Caterpillar No. 14 and No. 12 Motor Graders.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.



**with work and time saving
attachments for
your Cat Motor Grader**

DOMOR ELEVATING GRADER (shown above) . . . loads scrapers, wagons, trucks. Sidecasts. Other attachments built by Ulrich Manufacturing Co. include the Road Widener and Trench Filler and Shoulder Spreader.

AUTOMATIC BLADE CONTROL . . . available factory-installed as optional equipment. This control, manufactured by Preco Incorporated, increases efficiency on most applications. Now transistorized, the unit automatically maintains blade slope within $\frac{1}{8}$ " in 10'. Cuts fine finishing time as much as 50%.

HYDRAULIC SIDE SHIFT MOLDBOARD . . .

a Caterpillar attachment, permits in-seat moldboard shifts to either side.

SNOW PLOWS, SNOW WINGS AND BULLDOZERS . . . built by Omaha Steel Works, are available for specialized applications and increased versatility.

Look to your Caterpillar Dealer for the most complete selection of earthmoving and construction equipment . . . with the most complete parts and service facilities to back it up.

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1356 E. 12th St., Erie, Pa.
Route 219 North, Somerset, Pa.
Buckhannon Pike, Clarksburg, W. Va.

OHIO MACHINERY CO.

6606 Schafaf Road, Cleveland, Ohio
930 Kinnear Road, Columbus, Ohio
2807 Reynolds Road, Toledo, Ohio
U.S. Route 250, Cadiz, Ohio
4000 Lake Park Road, Youngstown, Ohio

WALKER MACHINERY CO.

Route 60 East, Belle, W. Va.
4010 Emerson Ave., Route #2, Parkersburg, W. Va.

Stripping 45-foot Overburden With Tractor

By Charles J. Cooper

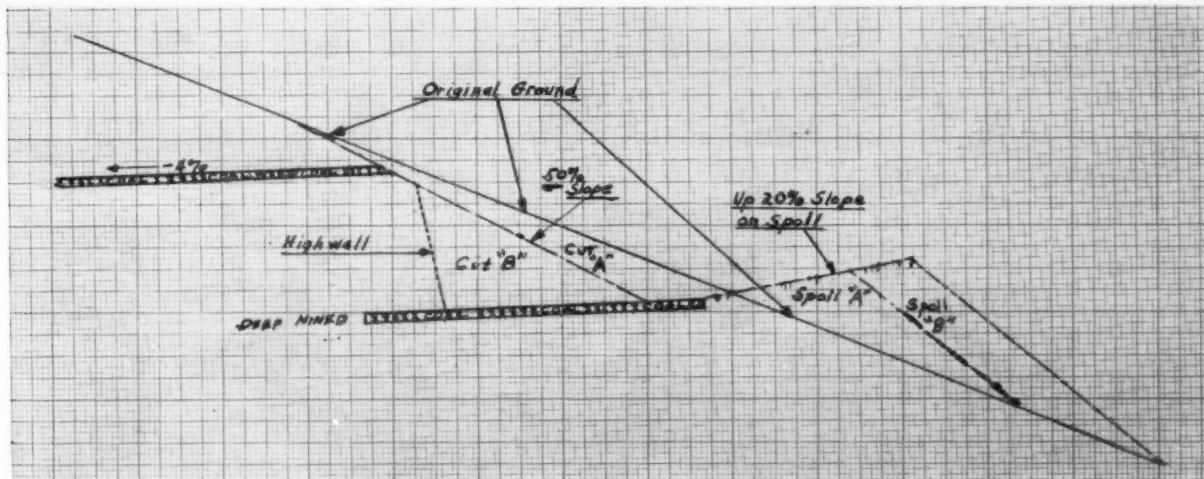
- Hiyasota Fuel Co. of Johnstown, Pennsylvania, is using two Caterpillar D9 Bulldozers, one of which is equipped with a hydraulic tilt "U" blade and hydraulic tractor-mounted ripper, to remove up to 45 feet of overburden without assistance from other types of earthmoving equipment. This stripping operation is taking place on

the side of a steep hill (original grades between 30% and 40%), where two seams of coal exist.

Sketch "A" shows the situation before the coal is uncovered, and the procedure to strip the first cut on the lower seam of coal. The bulldozers first remove Cut "A" by dozing overburden in the direction of the proposed spoil pile. The average

push distance for this operation is less than 60 feet, all on very favorable downhill grades where blade loads can be up to 20 solid cubic yards. Picture "1" shows D9 working at this operation.

The bulldozers are limited to backing up grades of approximately 50% so that Cut "B" must be removed by side casting with the



Sketch A



Picture 1—Cut "A" has been removed and some coal exposed. Dozer is pushing cover material out on to Spoil Pile "A".

dozers in order to square off the proposed highwall. This is done mostly by the D9 with hydraulic tilt "U" blade which acts as an angle blade on both sides (See Picture 2). When material is side cast far enough away from proposed highwall for the dozers to get behind it, it is bulldozed to spoil pile "B". The average push distance for this portion of the operation, not counting side casting, is approximately 100 feet.

The upper seam is removed in much the same fashion as the lower seam. The main difference is that there is more spoil room created by the lower cut so that bulldozer push distances are even less.

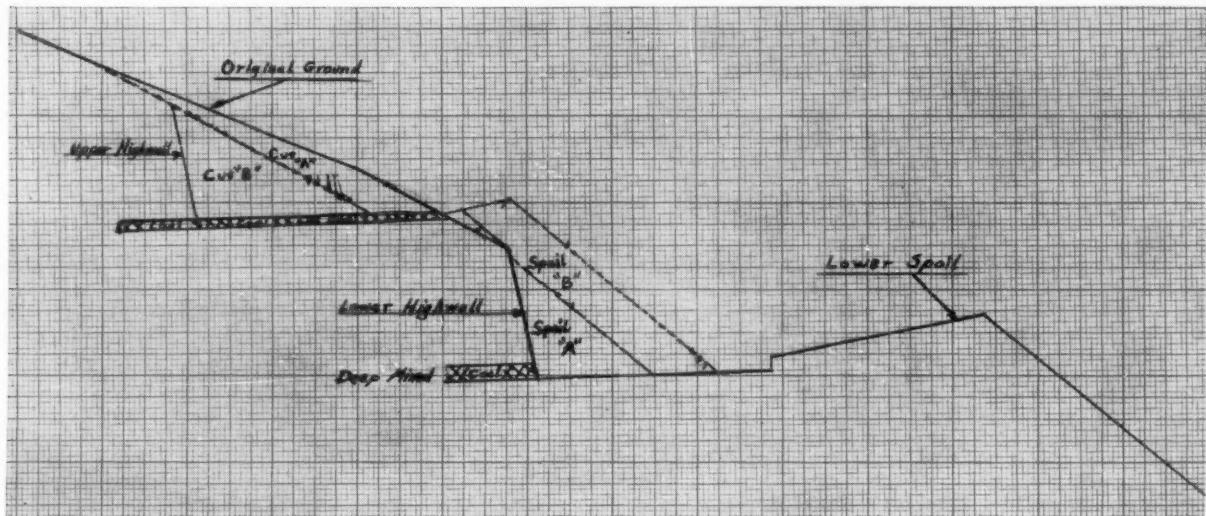
This method of stripping by the use of large bulldozers alone is proving useful when small acreages are



Picture 2—Squaring off highwall with D9 and 9U "tilt" bulldozer. Note highwall in background and block of coal already exposed.



Picture 3—D9-9U Bulldozer pushing spoil up 20% grade. Blade loads are much smaller than on downhill push but still exceed 6 solid cubic yards.



Sketch B

to be uncovered and mobility, and ease of transport of equipment are important. Also, when this method of stripping is possible, the ratio of investment to production is very, very favorable, as is the used recovery value of the equipment should the coal strip operator wish to consolidate his operations.

- An improved 125 c.f.m rotary compressor, for cross mounting behind cabs on motor trucks, is announced by Davey Compressor Co., Kent, Ohio.

Said to be dimensionally smaller, more compact and lighter than other machines for across-truck use, it is designated as Model 125-RP utility skid.

Outstanding design features include convenient curbside location of all controls, gauges, service outlets and vertical instrument panel. Finger-tip push button electric starter is standard equipment.

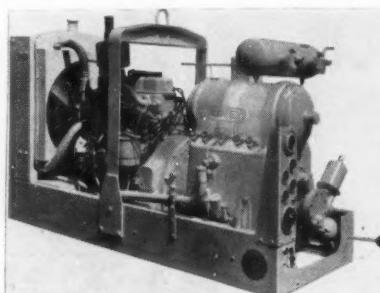
Compressor unit is of Hydrovane rotary type with patented Davey Perma-Vane light metal blades. The

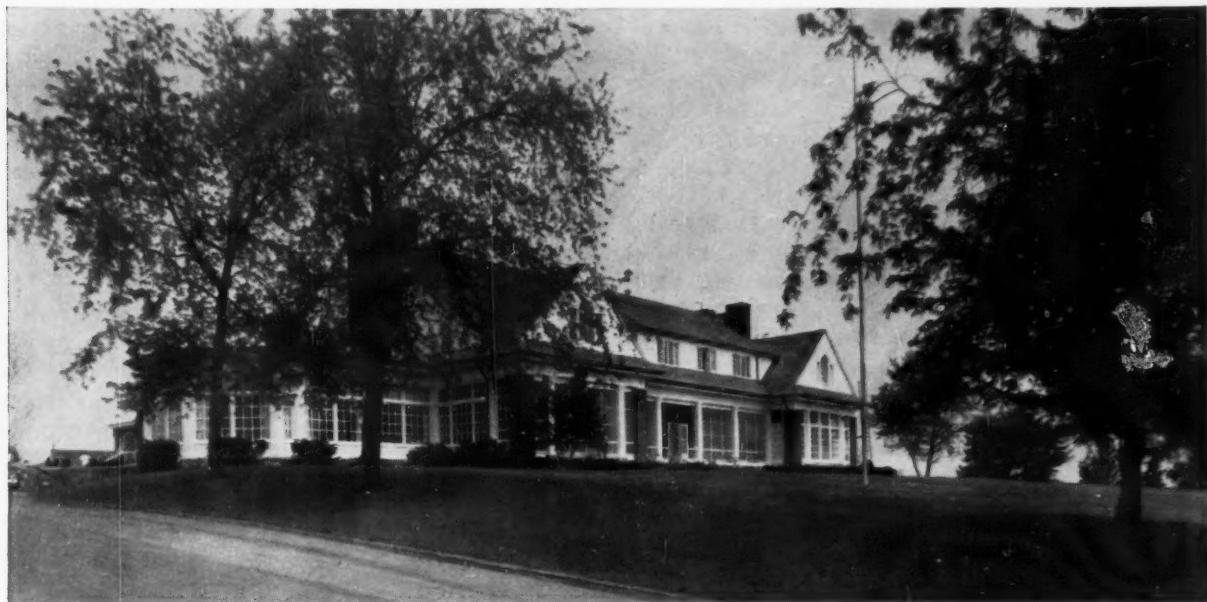
latter are reputed to virtually eliminate compressor operating troubles due to blade deterioration and breakage. A thermo-by-pass controls temperature and flow of compressor oil.

Clutch, connecting Hercules Go 198A engine to compressor, is of Twin Disc dry type. It has an extended lever for easy operation from the ground. Other accessories, such as oil filler spout, etc. are so arranged that the entire assembly can be serviced without climbing on the truck body.

Model 125-RP utility skid dimensions are length, 78 inches; height, 48 inches; width, 28 inches. Weight is 2190 lbs. (wet).

For complete specifications, write Davey Compressor Co., Kent, Ohio.





Sunnehanna Country Club

Remarks By S. F. Dunn, President National Coal Association at Meeting of Central Pennsylvania Coal Producers Association, Sunnehanna Country Club, Johnstown, Pa. May 25

● What happens in the coal Industry is of direct interest to every industrialist and businessman. For this reason the National Coal Association — its activities and its plans — are of particular concern to you. Industry progress can depend to a considerable extent upon the degree to which all segments of the industry support their national organization.

Briefly, here is how NCA has been reorganized. The operations of eight separate groups have been combined under the National's direction and operation. The new organization provides for central control with flexibility in accordance with modern management principles. Our reorganization plan involves the complete merger of NCA with American Coal Sales, Bituminous Coal Institute, Coal Producers Committee for Smoke Abatement, and Bituminous Coal Equipment (formerly Automatic Solid Fuels); and close integration with Bituminous Coal Research, Inc., Fuels Research Council, Coal Ex-

porters Association, and others.

NCA's structure and policies are the product of a board of directors on which are many of the nation's industrial leaders. Our membership is made up of large companies and small, representing all coal-producing and consuming states.

Bringing the many coal industry functions together, was not an overnight operation. It began with a survey of each of the organizations more than a year ago. The affiliation of Bituminous Coal Research, Inc., with NCA did not become official until last month. Two weeks ago the first meeting of a newly-created central research laboratory committee took place in Pittsburgh. We are hoping that, with proper financial backing from some of the numerous industries which would benefit, a modern coal research laboratory will become a reality in the near future—and right here in your own backyard!

There is no question but that a long-range basic research program will have enormous benefits in the

production of coal. There is opportunity for unlimited advancement in the fields of electronics and hydraulics. There is ample room for scientific exploration of the geological phenomena attendant to the mining of coal. At this particular time, however, the most urgent need is for practical applied research that will develop new uses for coal. Through an aggressive research program, coal can be the base material of any number of new consumer items.

A task force from several of the NCA departments has been appointed to undertake a crash program aimed at revolving some of our most serious problems. One of its first projects is a survey of markets — by industry and company — converting to oil in the current breakthrough campaign that is being conducted by the international shipping gang. You may be familiar with this strategy. The mandatory oil import control program was predicated on a six-month allocation period. Beginning in the early weeks of last January, the Atlantic Seaboard was

literally flooded with alien oil priced at whatever figure was necessary to undersell coal. In this attack on our markets, the shipping companies quickly exhausted their import quotas, then went running to the Department of the Interior with the warning that fuel shortages would develop unless emergency allocations were allowed. The increases were granted, much to the disappointment of the coal industry, and we at once indicated our dissatisfaction to responsible government officials. However, the increases were far less than demanded, and, over the oil companies' opposition, the quota system was changed from a semi-annual to a quarterly basis. This partial gain was directly attributable to our efforts.

Without asking the identity of the supplier and consumer involved, permit me to report on the case of a mine in Central Pennsylvania that has been shipping more than

300,000 tons of coal annually to an electric utility plant on the East Coast. Our survey discloses that oil has been offered at a price of approximately \$2.09 a barrel, which is about \$1 a ton equivalent **under** the price of coal with the reduced freight rates in effect. These freight rates, incidently, were revised for the specific purpose of meeting foreign oil competition. If that particular tonnage from your local mine becomes a victim of foreign residual oil, further severe economic damages will be felt in this area. Three million dollars would be lost in revenue to your coal and railroad industries, with approximately half that amount being taken from the paychecks of Central Pennsylvania's miners and railroaders. A strong arm is needed to carry a big stick. Coal, steel, and the railroads still constitute the sinew of national might.

NCA recently announced that it would cooperate with coal-producing

area development commissions in attracting new and expanded industrial operations. We intend to work with other appropriate government agencies to help local coal areas in their development campaigns.

NCA is equipped to provide comparative fuel costs for coal and other fuels in the various parts of the country. The cost advantages of moving into a community where inexpensive fuel for heat and power is readily available is obviously an important factor in deciding where to locate. Yes, NCA's operations cover a very broad range of industry activities. Every coal producing and sales company can benefit from our services. In like manner, we need your cooperation and support in all of our undertakings. With solid coal industry backing—plus the assistance of allied industry and business—we have the horses to move swiftly along the road to economic progress.



S. F. Dunn addressing the Central Pennsylvania Producers. To the left is Wm. H. Ritter, Pres. Reitz Coal Co. To the right Geo. E. Owens, Pres. of the Assoc. and to his right is Lange, Secretary of the Assoc.

Three New Caterpillar Motor Graders Powered With New Design Engines, Have Increased Productivity

● Three new models of motor graders, all incorporating major improvements that substantially increase machine productivity, have been announced by Caterpillar Tractor Co. New design, compact engines, as well as other new features, have been released for all three machines—the No. 112E, the No. 112F and the No. 12E.

Introduction of the No. 112 Series F amounts to addition of a fourth machine to the company's motor grader line, a spokesman said.

The new No. 112F is powered by a turbocharged, four cylinder diesel engine of compact design which is rated at 100 horsepower. Horsepower of the No. 112 Series E has been increased to 85, an increase of 13 per cent over the previous model, and the No. 12E is rated at 115 horsepower.

Both the No. 112E and No. 112F incorporate the long-lived Caterpillar oil clutch, improved blade controls, a one-piece transmission and final drive case, and the recently developed dry-type air cleaner.

Prime feature of the new, compact diesel engines is the increased productivity resulting from improved torque rise characteristics. The higher torque rise gives the machines more "staying power" when



Outward appearances of the newly announced Cat. No. 112 Series E and No. 112 Series F Motor Graders are similar. Major differences are in the power plant, with the No. 112F having a compact design turbocharged diesel delivering 100 horsepower. The No. 112 E, also equipped with a new design, compact diesel engine, has 85 horsepower. Both models offer substantial productivity increases over previous machines.

pulling through heavy loads. In addition to increased performance, design features of the new engines guarantee long service life and easy accessibility for maintenance and servicing. In all three engines, the air intake manifold is cast integrally with the cylinder head, reducing the possibility of dirt entry.

Travel and control speeds of the No. 112F are five percent faster than those of the No. 112E. Control speeds on the No. 112E are the same as on previous models, but travel speeds are increased slightly.

The No. 112E and No. 112F Motor Graders are the only ones in their size class equipped with an oil clutch. This clutch has the advantages of long service life and requires only minor adjustments each work season. The long service life is made possible by use of an oil film between the clutch plates which reduces wear and aids in heat dissipation.

A more solid foundation for bearing cages is provided by the one-piece transmission and final-drive case incorporated in both models of the No. 112 Motor Grader. The new one-piece case also provides for additional sealing against lubricant loss.

Positive assurance against moldboard creeping is provided by a new control lock, and smoother control lever engagement results from adoption of a new two-tooth jaw clutch on both the No. 112E and the No. 112F.

Side slope workability of the No. 12 Series E has been improved through lowering of the machine's center of gravity. Without disturbing the favorable weight to horsepower ratio, the machine has been given even greater stability than with previous models by increasing weight in the wheels.

Adjustment of the side shift rack on the new No. 12 also is now possible through a split arrangement.

The rack is installed with shims, which can be removed as necessary compensate for wear.

All-weather in-seat starting is provided on all three machines by a newly designed gasoline starting engine. An interconnected lubrication system allows the starting engine to warm diesel engine oil prior to starting of the diesel. Exhaust from the starting engine is used to warm diesel intake air. All three starting engines are equipped with the dry-type air cleaner. A 24 volt direct electric starting system is available as optional equipment. The gasoline starting engine is started by a 12 volt electric system and a recoil type manual starter is installed for use in the event of battery failure.

All three of the new diesel engines are equipped with the new dry-type air cleaner. Composed of a pre-cleaner and two filter elements, this cleaner has an efficiency of 99.8 per cent even under the most severe conditions. The precleaner removes the majority of foreign elements from the air and the main element takes out the remaining filterable particles. A secondary element acts as a safety in the event the main element receives undetected damage.



Easier and more positive engagement of controls on the No. 112 Series E and No. 112 Series F, new model motor graders announced by Caterpillar Tractor Co., result from incorporation of the two-tooth jaw clutch. The new clutch and a mechanical lock prevent blade creeping and reduce "kickback." Similar arrangements are standard on the No. 12 and No. 14 Motor Grader.



E. B. SPEER
Administrative Vice President
Central Operations — Steel and Coal
United States Steel Corporation



JESSE F. CORE
Vice President — Operations — Coal
United States Steel Corporation



R. C. BEERBOWER, Jr.
General Superintendent
Frick District Coal Operations
United States Steel Corporation

- E. B. Speer, administrative vice president—central operations (steel and coal), United States Steel Corporation, is a native of Pittsburgh. He attended the University of Pennsylvania and Youngstown University and became affiliated with U. S. Steel in 1938 as a metallurgical observer at Youngstown District Works.

Mr. Speer successively was promoted to superintendent of the Bessemer and open hearth departments and was transferred to U. S. Steel's Gary Works, Ind., as assistant division superintendent of steel production in 1951.

He was appointed division superintendent of steel production in 1952 and a year later came to Duquesne Works as assistant general superintendent. He was made assistant general superintendent of Fairless Works in 1955 and general superintendent of the plant in July, 1956.

In February, 1958, Mr. Speer was appointed general manager of operations—steel. He was named vice president, operation—steel May 13, 1959, and to his present position Nov. 16, 1959.

He is a member of the American

Iron and Steel Institute, American Institute of Mining and Metallurgical Engineers, American Society of Metals and the Navy League.

* * *

- Jesse F. Core, vice president—operation—coal, is a native of Ford City, Pa., and was graduated from Penn State University with a degree in mining engineering.

Before coming to U. S. Steel, he worked for four leading coal companies and is well known in the coal mining field. Starting in 1935 with Hillman Coal and Coke, he worked first as a miner. In 1938 he joined Pittsburgh Consolidation Coal Company, being employed in various capacities until 1947, when he became chief engineer at Nemacolin Mine for the Buckeye Coal Company. He then served in the same capacity for Island Creek Coal Company at Holden, West Virginia, from 1950 to 1951, when he came to U. S. Steel's Frick District as mining engineer. He was made chief engineer for the district in 1954 and general superintendent in December, 1955. In February, 1958, he was appointed vice president—operations—coal for U. S. Steel Corporation.

- R. C. Beerbower, Jr., general superintendent of coal operations in the Frick District, was born in Star Junction, Penna., and was graduated from Pennsylvania State University with a bachelor's degree in mining engineering.

He joined U. S. Steel in 1948 as supervisor of mechanization for the H. C. Frick Company at Uniontown, Penna. In 1949, he was appointed assistant to the superintendent at the Leisenring Mine, and two years later was named assistant superintendent. In June, 1952, he was appointed superintendent of the Karen Mine, and in 1956 became assistant general superintendent of the Frick District. He was placed in charge of the Robena operations last July. In February, 1958 he was named general superintendent of the Frick District coal operations.

- J. A. Hunt of Beckley, W. Va., was elected chairman of the board of the New River Co., and W. A. Haslam was chosen president at a meeting of the board of directors last week. Mr. Haslam succeeds C. R. Bourland of Mt. Hope, who retired. C. E. Mahan, Fayetteville, W. Va., retired as vice president. No successor has been named.

- One of the newest applications for polyethylene film, the versatile plastic which has found wide and ever-increasing utility in many fields, is its use as a seal over stoppings in coal mines.



Durethane polyethylene film being applied as a seal over metal stopping in U. S. Steel Corporations Robena Mine No. 3.

In its Robena Mine No. 3 in Greensboro, Pa., United States Steel Corporation is experimentally trying 6-mil. clear Durethane polyethylene film, a product of the Plastics Division, Koppers Company, Inc., to limit air leakage on metal stoppings used to direct vital air currents to the working face.

About one hundred feet of the Durethane film is used for each stopping to control the air which is so essential for ventilation.

● R. W. Knodle, general sales manager, Mining Division, The Jeffrey Manufacturing Company, Columbus 16, Ohio, recently announced the following appointments in the Bluefield, W. Va. district:

P. M. Campbell, Assistant District Manager, Bluefield. A new position. He was formerly a sales engineer under W. G. Montgomery, Bluefield District Manager.

Milton Harper, Apparatus Sales Engineer in the No. 133 (N & W) territory. He had been undergoing an intensive training program on Jeffrey equipment and previously was mine superintendent, Island Creek Coal Co.

Court Clarke, Renewal Parts Sales Engineer in the Beckley territory. He also is a product of the Jeffrey training program.

Highway sheds light on service problems



Night . . . or day! At any hour, Highway crews are on the job to keep your equipment running efficiently.

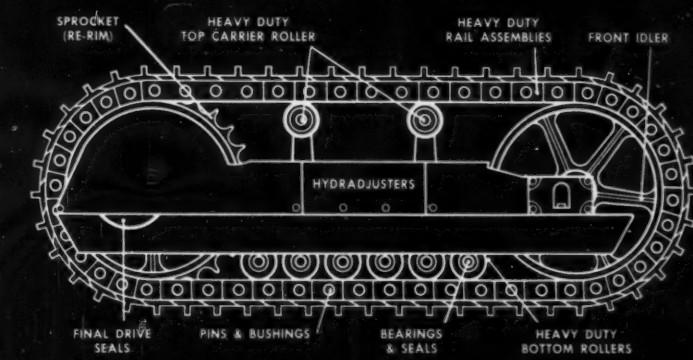
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A-2509A



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AVAILABLE TO ALL BUYERS . . . REGARDLESS OF LOCATION

EACH ITEM SELLS . . . WITHOUT LIMIT OR RESERVE

CRAWLER CRANES — SHOVELS — BACKHOES

1958 Marion 13-Yd Model 7400 Electric Walking Dragline & 1958 4½-Yd Model 111-M Shovel • Manitowoc 4500 & (2) 1956 Model 3500 Shovels • Lima Model 1201 & Never-Used Model 34 Draglines & Backhoes • Link-Belt K-580 Crane & LS-71 Dragline • (2) 1955 Bucyrus-Erie 51-B, (2) 1953 54-B & 38-B Shovels • (3) 1953 Lorain 820 & Model 75 Shovels • Koehring 301 Cranes & Shovels • Industrial Brownhoist 70-C Shovel & Drag • Buckeye 70 Shovel • 1959 American 375 Crane • Osgood & Inley Shovels & Backhoes • Other Models

(14) MOTOR SCRAPERS

(8) 1958 Euclid S-18s • (3) 1958 LeTourneau Bs • (3) A-C 1953 TS-300s

TRUCK CRANES

Schield Bantams • Michigans • Quickways • Lorains • Yumbos • New A-Ws

EUCLID TRUCKS

(7) 1954 Euclid 36-TD Rear Dumps • (2) Euclid 9FDT-58W Bottom Dumps

CRAWLER TRACTORS

1956 Cat D-9s • (14) Cat 14-As, 13-As & Late 2-U Series D-8s • (6) Cat D-7s • (2) Cat D-6s • A-C Model HC-21s, (2) HD-20s, (2) HD-19s, HD-11Bs, HD-7Ws & HD-5s • (5) Int'l TD-24s • (6) Int'l TD-18As • Int'l TD-14As, TD-9s & TD-6s with Loaders & Cranes • (2) 1958 Euclid TC-12 Pushers • (2) 1957 Case Model D-1000-C & 500-C Loaders • Most with Straight & Angle Dozers

DRILLS

1954 Reich Model 600-H Diesel Powered 6" Rotary Drill, Mounted on Int'l Truck • McCarthy Model 103 Horizontal Drills • Joy, Hardscog & McCarthy 106 Vertical Drills • (2) 1958 Gardner-Denver Model DH-123 Air Track Drills

WHEEL TRACTORS

1955 MRS Diesel Model 190 • (4) 1958 Case Model 320-Ws, With Front End Loaders & Backhoes • Int'l Diesel ID-9s, With Loaders • Ford Model 3 Loader • Scoopmobile Model H • 1958 Haugh Model HM Front End Loaders

TRUCKS & TRAILERS

Int'l & Mack Truck Tractors • 1957 Chevrolet Stake Trucks • Chev & Dodge Tandem Dump Trucks • 1958 Chev & Ford Pick-Ups • Jeeps • Several Trailers Including Tandem Lowboys, Tagalongs & Tank Type Units • Many Others

COMPRESSORS

(18) Compressors, 105 to 365 Cfm, Mostly Portable, I-R, LeRoi, C-P, Davey, Also 1959 Joy Diesel 900 Cfm & 1957 Gardner-Denver Diesel 500 Cfm

(10) MOTOR GRADERS

Caterpillar Model No. 12s • Austin-Western 99s • Allis-Chalmers AD-3s • Galion Model 118s, 116s, T-600s & 102s • Many Other Desirable Late Models

MISCELLANEOUS

Pneumatic Tired Rollers incl 1959 Bras 50-Ton 450s & Tampa Self-Propelled SP-9s • 1953 Compton 48 Diesel Coal Auger • (2) 1958 Mich 180-TCD Diesel Steel Wheel Compactors • (12) Scrapers incl (3) Cat 80s, Gar Wood 625s, Bucyrus-Erie & Heils • Cat 28 Rippers • Jackson MC-130 Vibrating Compactor • (8) Sheepfoot Rollers incl 1958 LeTourneau 120-As • Asphalt Equip incl Etnyre Distributors & Galion Rollers • Concrete Equip • Sand & Gravel Equip incl Stone Spreaders, Shaker Screens, Conveyors & Jaw Crushers • Barber-Greene Loaders • Trenchers incl Parsons, Clevelands & Buckeyes • Broom Sweepers • Many Pumps, from 2" to 8" • Curb & Gutter Equip • Truck Mixers, • Clam & Drag Buckets, to 6-Yd • Wagon Drills • Pile Driving Equip • Carb Diesel & Gas Engines • (14) Welders, Mostly New & Gas Powered, 200 & 300 Amp • Transformers & Elec Motors • (46) Mostly New Generators to 30 KW & Electric Plants to 7.5 KVA, Many 1958 & 1959 Diesels • Core Drills • Prospecting Drills • Hoists • New Wrecking Balls • Pneumatic Tools & Equip • Ele Drills & Grinders • Chain Saws • Shop Tools, Machinery & Equip • New Wire Rope • New Rubber & New Fire Hose • Structural Steel & Pipe • \$200,000.00 New & Unused Parts, Accessories & Attachments for Cranes, Shovels, Backhoes, Crawlers & Wheel Tractors • Other Late Model Items

EACH ITEM SELLS . . . WITHOUT LIMIT OR RESERVE

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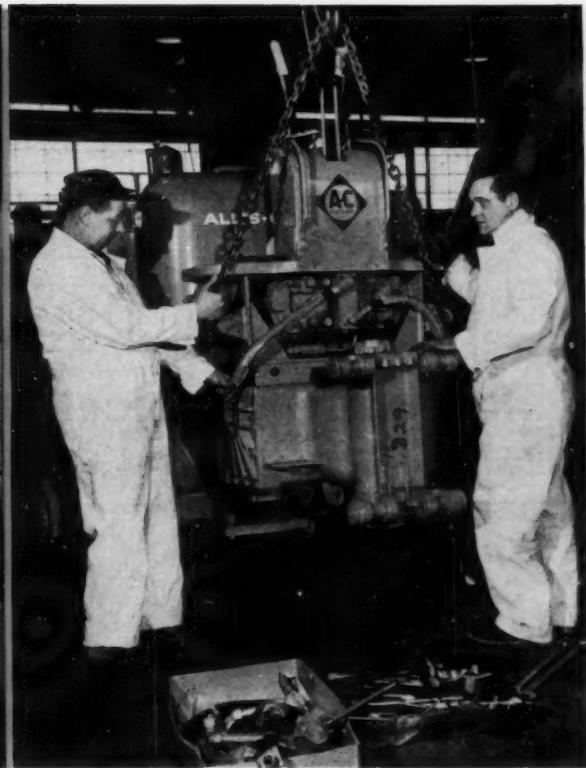
AMERICA'S LEADING EQUIPMENT AUCTIONEERS

ROSS & ROSS
AUCTIONEERS, INC.

MINNEAPOLIS 16, MINNESOTA



Sam Sponsler (left) and Blain Bartley give preventive maintenance checkup to Allis-Chalmers TL-14 Tractoloader.



Gerald Watenpoll (left) and Peter Petronich mount backhoe attachment on Allis-Chalmers HD-6G.

Q.

What makes Highway famous for fine service?

A.

1. 'round-the-clock operations at Pittsburgh, Du Bois, Erie.
2. Veteran, factory-trained staff of 87 mechanics.
3. Fleet of 32 fully-equipped service trucks.
4. Parts stocks of 23,800 different items.
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HIGHWAY EQUIPMENT COMPANY

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Allis-Chalmers • Master • Lima • Thor • Heltzel • Gar Wood
Jaeger • Buffalo-Springfield • M-R-S
Rogers Trailers • Lippmann Crushers



**JEFFREY CHAINS
and SPROCKETS**

DIAMOND ROLLER CHAINS

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**BRAKE
LINING**

NORTHEASTERN INCORPORATED

321 Cherry Avenue N. E.
GL 6-7333 Canton, Ohio

75 Maysville Avenue
GL 2-3602 Zanesville, Ohio

Shovel and Crane Sale

1—Lima 25 with 11'9" crawlers, 30" pads, GM 3-71 diesel engine, air controls, camel back boom back hoe, precision boom hoist, 2 speed propel, $\frac{3}{4}$ yard ESCO bucket. Like new. Used three (3) months. A savings of \$5,000.00. \$21,000.00

1—Lima 44 with 12'3" crawlers, 30" pads, Cat D-318 engine, worm driven boom hoist, air assistants; Back hoe camel back boom. Late 1957 in perfect condition. 1 yard ESCO bucket. \$22,000.00

1—Shield Bantam Model C-35, camel back backhoe and 30' boom, dragline bucket, Continental gas engine, wide pads. Good condition. \$5,500.00

1—Inslay K-12 Backhoe with 36" bucket, Continental diesel engine, maximum counterweight, 24" pads, long crawlers 11'3". Good condition. \$7,500.00

1—Inslay K-12 Backhoe with 36" bucket and crane boom, basic 30' plus 10' section, gas engine, 18" pads, short crawlers. Attachments worth the price. \$3,500.00

1—Inslay K-12 Backhoe with 36" bucket, International diesel engine, maximum counterweight, 24" pads, long crawlers. \$5,000.00

1—Inslay K-12 Backhoe with 36" bucket, Waukesha gas engine, maximum counterweight, 24" pads, 11'3" crawlers, 36" bucket. \$6,000.00

1—Unit 1020 Backhoe, $\frac{3}{4}$ yard, G. M. diesel engine, 30" pads, long crawlers, priced to sell. \$5,000.00

1—Bucyrus-Erie Backhoe Model 15-B, Cat 44 engine, 16" shoes, short crawlers. \$4,000.00

1—Inslay Model L $\frac{3}{4}$ yard Backhoe, 24" shoes, long crawlers. As is. \$2,500.00

1—Marion III with 80' boom, 2 G.M. diesel engines, wide shoes, long track, dragline construction with heavy duty dragline bucket, 4 $\frac{1}{2}$ yard. Good operating condition.

1—3500 Manitowoc high shovel front, 2 yard dipper with Cat D-17000 engine, long crawlers, wide pads, light plant.

1—Osgood 906 1 $\frac{1}{2}$ cubic yard shovel front Waks. Hess diesel, standard pads and track. Complete—ready to work. \$5,000.00

All rigs are located in our yard with the exception of the last three.

**CLEVELAND CONTRACTORS
EQUIPMENT CO.**

10904 Brookpark Road
Cleveland 30, Ohio
SHadyside 1-5570

● Consolidation Coal Co. announced that George L. Judy, formerly vice president of its Mountaineer Coal Co. Division, has become vice president-operations of Christopher Coal Co., a Consol subsidiary. D. H. Davis of Pittsburgh, who has been assistant to the vice president-operations of Consol, has been made vice president-operations of Mountaineer Coal Co., with headquarters at Monongah, W. Va.

William O. Barnard, formerly with Christopher Coal Co., has been transferred to Mountaineer Coal Co.

FOR SALE

● Used LeRoi 365 CFM portable diesel driven Air Compressor—4 pneumatic tires, powered by model UD-18-A International engine. \$6,000. FOB Glenshaw, Pa.

● PTH Slightly used Model 755-B shovel, equipped with Caterpillar D-326 Diesel, Magnetorque swing clutches. Entirely reconditioned with new machine warranty, \$55,000. FOB Teterboro, N. J.

● P & H used model 1055 LC dragline, 80 ft. boom, $2\frac{1}{2}$ yard Page bucket. New AC turbocharge diesel, new Clark torque converter. Also equipped with light plant. Good condition. \$40,000 FOB Somerset, Pa.

● Used Link-Belt K-595 dragline, 80 ft. boom, $2\frac{1}{2}$ yard Page bucket. Powered by Caterpillar D-17,000 Diesel. Swing shaft just rebuilt \$41,000 FOB Wellsboro, Pa.

● Used Hough $\frac{3}{4}$ yard front end loader with rebuilt International U-9 Gas engine. Good condition. \$2,200. FOB Glenshaw, Pa.

● Slightly used demonstrator PM model 440 front end loader, powered by GM 471 Diesel, 4 wheel drive Allison torque converter and 4-20: 5 x 25 tires. \$26,000 FOB Glenshaw, Pa.

A. T. GREEN MACHINERY CO.
Route 8 Glenshaw, Pa.
Phone Sterling 1-9600

as general superintendent of Mine 32 at Owings, W. Va. and Mine 63 at Monongah.

● Richard C. Mitchell, Man, West Virginia, has been named as a sales representative of The Salem Tool Company, Salem, Ohio. Mitchell was formerly with Amherst Coal Company. He will work with Salem Tool distributors and auger mine operators in Kentucky, West Virginia and Tennessee. Salem produces McCarthy Coal Augers, Vertical Drills and Horizontal Blast Hole Drills.

FOR SALE

174 - All Steel, Solid Bottom Mine Cars

Capacity 290 Cubic Feet

48" Height — 72" Wheelbase — 44" Gauge

4 — 18" Cast Steel Wheels — Timken Bearings

Ohio Brass Automatic Couplers

Complete Specifications Available Upon Request

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SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS

Made to Withstand High Drilling Speed Whip And Torsional Strain Of Electric Drills.



Drills holes faster — Will not snap off shank or chip points — Outlasts four or five ordinary augers.

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McCoy Coal Stripping Co.
Ohio River Collieries Co.
Oliver Iron Mining Co.
Peabody Coal Company
Phelps Dodge Corp.
Pima Mining Co.
Raleigh Eagle Coal Company
Red Parrot Coal Company
Saxton Coal Corp.
Sullivan Trail Coal Co.
Tasa Coal Company
U. S. Gypsum Company
U. S. Steel Corporation
Utah Construction Co.
Vecellio & Grogan
Warrior Constructors
Western Contracting Corp.
Winton Coal Co.

Also Foreign —
National Coal Board,
Great Britain (43 drill rigs)
Atlas Consolidated Mining &
Development Corp.,
Philippine Islands
National Coal Development
Board of India

Above is a partial list
of recent ORDERS
and DELIVERIES

There is **ONE** drill rig that is giving results like **THESE**

"80% more hole drilled by REICHdrill 650 in shale and medium sandstone, than by another hydraulic powered rotary of same rated capacity."

"3 other truck-mounted rotaries drilled a total of 221 ft. of 5½ inch hole per hour — one crawler-mounted REICHdrill 750 drilled 236 ft. of 6¼ inch hole per hour, and also averaged 3,000 feet more per bit."*

"Weighing 6½ tons less than a crawler rotary that cost almost twice as much, REICHdrill 650 drilled 7¾ in. holes approximately as fast in hard tough sandstone."

"Very hard rock, REICHdrill 650 with 6½ in. down-the-hole hammer drilled at rate of 54 ft. per hour; other rig with 6 in. hammer, 29 ft. per hour."

"In hard sandstone our 750 REICHdrill averaged 57 ft. of 7¾ in. hole per hour, 1 man operating. Our other drill of same rated capacity averaged 41 ft. of 6¼ in. hole per hour, 2 men operating."

"38 ft. per hour of 7¾ in. hole drilled by our REICHdrill 750 in hard dense blue sandstone—competitive drill of same rated capacity 18 ft. per hour, both truck-mounted."

(Full details of the above cases—and many more—sent on request)

The REICHdrill's greater speed is BUILT IN:

Faster Stem Loading of the REICHdrill saves time on every hole. Drill stem is added in seconds (Compare stem loading).



Hydraulic Loader

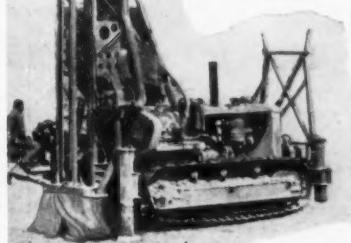
Barrel Loader

*Exactly Right Drilling Speed in every material — the only hydraulic rotary with infinitely variable drilling speed. Much bigger production with far lower bit cost.

Easiest Operation with minimum levers—all controls actuated by hydraulic power. A real one-man rig.



Find out the Extra Profit you'll make with a REICHdrill. Get the records made by REICHdrills of owners nearest you—We'll tell you where they are. For full details Write, Wire or Phone—



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The promises we make are not based on politics—you can believe every word: We'll Buy any quantity of Mining Equipment or complete Mines including Railroads at any time you want to sell and at fair prices always. We'll Sell anything for the efficient mining of coal from one part to an entire mine, including tipplers, and guarantee to save you money.

JOY EQUIPMENT—REBUILT

- 3—Joy 14BU Loaders, low pedestal, 7AE, '56 & '57.
- 6—Joy 14BU Loaders, medium pedestal, 7RBE.
- 1—Joy 14BU & 7CE high pedestal loader.
- 4—Joy 14BU 3PE Loaders.
- 2—12BU10E Joy Loaders complete with Piggy-backs.
- 2—Joy 12BU Loaders, 9E, latest type.
- 1—Joy 20BU Loader, latest type.
- 4—Joy 11BU Loaders, latest type.
- 1—Joy 8BU Loader, 34" overall height.
- 2—Joy 8BU Loaders, 220 volt AC.
- 1—Joy curved Bar Head, complete.
- 6—Reliance 24-J Motors, 7½ H.P.
- 4—Reliance 38-J Motors, 10 H.P.
- 20—9-J Motors, 4 H.P.
- 2—Goodman 660 Loaders on Crawlers 440 volt AC, like new.
- 1—Goodman 660 Loader on Crawlers, excellent 250 V. DC.
- 1—Goodman 665 Loader on Crawlers, latest type 250 V. DC.
- 1—Goodman 865 Loader 26" hi. Rebuilt. 250 V. DC.
- 4—Joy 8C Shuttle Cars, Rebuilt.
- 4—Joy 6SC Shuttle Cars, rebuilt, latest type.
- 1—Joy 5SC Shuttle Car, Excellent.
- 2—Joy 32E9 Shuttle Cars.
- 2—Joy 32E10 Shuttle Cars, rebuilt.
- 2—Joy 32E15 Shuttle Cars, rebuilt.
- 4—Joy 32E16 Shuttle Cars, rebuilt.
- 10—Joy 42E16 Shuttle Cars, rebuilt.
- 2—Joy CD-22 Drills, on rubber, like new.
- 6—Joy T-2-5 low pan Crawler Trucks, rebuilt.
- 1—Joy T-2-6 low pan Crawler Truck with reel.
- 2—Joy T-1 Standard Crawler Trucks, 220 AC.
- 1—Joy T-1 Standard Crawler Truck, 250 DC.
- 2—Goodman low pan Crawler Trucks, like new, latest type.
- 4—Joy 11-B Cutting Machines, like new, 35 and 50 H.P.
- 1—Joy 7-B Cutting Machine, like new, 250 volt DC.
- 2—Goodman 212 Cutting Machines, 19" high.
- 4—Goodman 312 Cutting Machines, 17" high.
- 3—Goodman 412 Cutting Machines, 19" high.
- 1—Goodman Machine on Crawler, 31" high. All hydraulic.
- 6—Goodman 512 Machines with Buggusters.
- 6—Goodman 612 cutting machines, 250 and 500 volt.
- 1—Lee Norse low vein Machine Carrier on rubber.
- 1—Jeffrey 70 URH rubber tired Cutter. Universal head, perfect condition.
- 1—Goodman 2410 rubber tired Cutter, Universal Head, like new.
- 3—Joy 11RU Rubber Tired Cutters with buggusters, Universal heads, dual tires, like new, 250 V. DC.
- 2—Joy 10RU rubber tired cutters Universal head, 220/440 volt AC, perfect.
- 4—Joy 10RU rubber tired Cutters, Universal Head, 250 V. DC.
- 6—7AU's on track. Universal head.
- 2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on Crawlers, 250 volt DC.
- 1—Jeffrey 29LC on Crawlers, rebuilt.

LOCOMOTIVES

- 1—Goodman 6 ton, 93-A, 27" high, armor plate frame.
- 1—Jeffrey 15 ton MH-77 Locomotive, Armor Plate frame.
- 3—Jeffrey, 13 ton, type MH-110, 36", 42", 44" ga.
- 2—Jeffrey, 10 ton, type MH-110, 42" and 44" Ga.
- 2—Jeffrey 10 ton, type MH-78, 42" & 44" Ga.
- 2—Goodman 8-30 and 10-30 Locomotives, 26" above rail.
- 1—Jeffrey MH-121, 4 ton, like new, with reel, 24" overall height.
- 2—Jeffrey, MH-150, 6 ton, 26" overall height, rebuilt with reel.
- 12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
- 4—Jeffrey, 8 ton, type MH-100, 2½" armor plate frames.
- 1—Jeffrey, 6 ton, type 2186, 22" above rail.
- 3—Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.
- 1—G. E., 4 ton, type 525 Locomotive, 22" high.
- 10—G.E., 6 ton, types 801, 803, 821 Locomotives, 42", 44" and 48" Ga.
- 1—G.E., 8 ton, type 822 Locomotive, 44" Ga.
- 3—G.E. 10 ton, type 809 Locomotives, 42", 44", 48" Ga.
- 2—G. E. 13 ton type 829 Locomotives, armor plate frames.
- 1—Goodman 91A Locomotive, 8 ton, 26" overall height.
- 2—Goodman, type 33, 6 ton, 44" and 48" Ga.
- 3—Westinghouse, type 904, 6 ton, 42" and 48" Ga.
- 2—Atlas Battery Locomotives, 36" Ga.
- 1—Ironton Battery Locomotive, 4 ton, 24" high. excellent, with charger.
- 2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.

- 1—Atlas Trolley Locomotive, 4 ton, 24" high.
- 2—Westinghouse, type 906, 44" and 48" Ga.
- 2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.
- 8—Jeffrey MH-78 Locomotive Units, cheap.
- 4—Jeffrey MH-88 Locomotive Units, real bargains.
- 4—Jeffrey MH-100 Locomotive Units, reasonable.
- 3—Plymouth Diesel Locomotives, 8 and 10 tons, 42" and 44" Ga.
- Locomotive Trucks and Spare Armatures for all the above.

TIPPLE EQUIPMENT

- 1—All steel 5 track Tipple, new 1957, complete with washer, silo, oil treating system, all bolted construction.
- 1—Complete Five Track Tipple with Washers and Air Tables.
- 1—Complete stoker plant, all steel.
- 2—Complete Tipples, 3 and 5 track, steel and wood.
- 3—Cleaning Plants, 1 Ea. McNally, Roberts and Schaeffer, Jeffrey, Washers and Airflow Tables.
- 4—Complete Aerial Trams for coal or refuse.
- 3—Complete Rope and Button Lines.
- 2—Monitor Lines complete with Drums, excellent.
- 1—Allis-Chalmers 5' x 12' Ripple Vibrator.
- 1—Allis-Chalmers 4' x 12' Low-Head Vibrator.
- 1—Robins Gyrex Vibrator 4x10.
- 10—Belt and Apron type Loading Booms.
- 6—Shaker Screens.
- 1—Robins Car Shakeout.
- 20—Crushers, various sizes—Jeffrey McLanahan & McNally.
- 4—Mine Scales, 10 & 20 tons.
- 5—Truck Scales, 25 to 40 tons, late type.
- Feeders, Belt and Drag Conveyors, Car Retarders, etc.

CUTTING MACHINES

- 2—Joy 10RU rubber tired cutters, Universal head, 220/440 volt AC. Perfect.
- 4—Joy 10RU rubber tired Cutters, Universal Head, 250 V. DC.
- 3—Joy 11RU, rubber tired Cutters, 250 V. DC.
- 1—Goodman 2410 rubber tired Cutter Universal Head, new, 1956, Excellent.
- 2—Jeffrey 29UC Universal Machines on Crawlers.
- 1—Goodman on Crawlers, 31" overall height.
- 3—Baby Goodman 212's, rebuilt, 250 Volt DC.
- 7—Goodman 212 Cutting Machines, 19" high.
- 4—Goodman 312 Cutting Machines, 17" high.
- 3—Goodman 412 Cutting Machines, 19" high.
- 6—Goodman 512's with Buggusters, like new.
- 4—Goodman 512's, rebuilt, or as removed from service.
- 6—Goodman 612's—250 & 500 V.
- 3—Goodman 112's 220/440 volt AC.
- 1—Joy 7-B Cutting Machine, 250 volt DC.
- 4—Joy 11B Cutting Machines, rebuilt. 35 and 50 H. P.
- 6—7 AU's, on track, Universal head.
- 10—Goodman 12AA's and 112AA's, 250 volt DC.
- 2—Goodman 324 Slabbers.
- 2—Goodman 724 Slabbers.
- 2—Goodman .324 Slabbers.
- 6—Jeffrey 35L's, like new, 17" high.
- 2—Jeffrey 35L's on low vein trucks.
- 2—Jeffrey 35L's, 220/440 AC.
- 3—Jeffrey 35BB, 220/440 AC.
- 15—Jeffrey 35B's and 35BB's, 250 V. DC.
- 2—Jeffrey 29's on track.
- 10—Jeffrey 29's, track mounted.
- 2—Jeffrey 29L's on Crawlers. Excellent.
- 1—Sullivan CE7, 220/440 V. AC.

CONVEYORS

- 1—Robins 36" tandem drive, with or without structure.
- 1—Jeffrey 52-B tandem drive, 26" Belt Conveyor.
- 2—Jeffrey 52-B tandem drive 30" Belt Conveyor 1,500'.
- 1—Joy 30" Underground Belt Conveyor, Excellent.
- 1—Goodman 97-C, 30" tandem drive.
- 1—Goodman 97-C, 26" Conveyor, 1,000' long.
- 1200' Robins 36" Underground Structure like new. 1,000'—Conveyor Belt 42".
- 4,000' Conveyor Belt 36".
- 4,000' Conveyor Belt 26".
- 8—Jeffrey 61AM 12" Chain Conveyors, 300'.
- 2—61WH 15" Room Conveyors, 300'.
- 2—Joy 15" Room Conveyors, 300'.
- 2—Joy 20" Conveyors, 300'.
- 4—Joy Ladel UN-17 Shakers.
- 10—Goodman G-12½" and G-15 Shakers.
- 1,000' Goodman 15" Flat Belt Conveyors, tandem drive, any length. Perfect.

CONVERTERS AND DIESEL PLANTS

- 1—300KW Portable Rectifier, 3 car unit, excellent.
- 2—500KW G. E. Stationary Rectifiers.
- 4—1,000KW Stationary Rectifiers.
- 2—100KW, G. E. TCC-6's, 275 volt, Rotary Converters.
- 1—150KW, 6 phase, Allis-Chalmers Rotary Converter, 275 V. DC.
- 1—150KW, G. E. HCC-6, 275 v. Rotary Conv.
- 2—200KW G. E. HCC-6's, Rotary Converters, 275 V. DC, Steel Frames, Newly rewound.
- 3—300KW, G. E. HCC-6's Rotary Converters, 275 V. DC, like new.
- 2—300KW Westinghouse, 6 phase, Rotary Converters, 275 volt DC.
- 2—500W Westinghouse Rotary Converters, 275 volt DC.
- 2—200KW Westinghouse Rotary Converters, 275 V. DC, Newly rewound.
- (all the above with 6900/13000 and/or 2300/4000 primary transformers)
- 2—100 KW MG Sets, 275 volt DC.
- 2—100 KW MG Sets, General Electric and Westinghouse, 275 V. DC.
- 1—200KW MG Set, Westinghouse, rebuilt, 275 V. DC.
- 1—200KW MG Set, General Electric, perfect, 275 volt DC.
- 2—300KW G. E. MG Sets, like new.
- 1—300 KW Westinghouse, 600 volt MG Set, rebuilt.
- 2—300KW Westinghouse, 600 volt, 6 phase, Rotary Converters.
- 2—500KW Westinghouse, 600 volt, DC, 6 phase, Rotary Converters.
- 2—500KW G. E. HCC-6's Rotary Converters, 6 phase, 600 volt DC.
- 1—GMC 471 Diesel with 60 KW, 250 volt DC Generator.
- 2—GMC-671 Diesels with 75 KW, 250 volt DC Generators.
- 1—Cummins 125 KW, Diesel with 250 volt DC Generator.
- 1—Allis Chalmers Natural Gas Engine with 100 KW Generator, 275 volt DC.
- Boilers, like new, 500 H.P.

LOADING MACHINES

- 16—Joy Loaders, 14BU, 12BU, 8BU, 11RU, 10BU.
- 5—Joy 12BU9E Loaders, 220/440 volt AC. Excellent.
- 3—Joy 12BU9E Loaders, latest type.
- 2—Joy 12BU with Piggyback Conveyors.
- 2—Goodman 865 Loaders, 26" on Crawlers.
- 1—Goodman 665 Loader, on Crawlers, rebuilt.
- 2—Goodman 660 Loaders, 440 volt AC perfect.
- 1—Goodman 660 Loader, on Crawlers, 250 V. DC.
- 1—Goodman 460, on track, Rebuilt. All Hydraulic.
- 2—Jeffrey 61 CLR's, on rubber, 26".
- 3—Jeffrey 1-L-500 Loaders.
- 2—Myers Whaley, No. 3 Automatic Loaders.
- 2—Clarkson Loaders, 26" above rail.

MISCELLANEOUS

- 1—Complete Five Track Tipple with Washers and Air-Tables.
- 5—Complete Tipples, 3 to 5 Track, Wood and Steel.
- Steel Treaters for drop bottom cars.
- All Steel Armcro Buildings.
- 20—Jeffrey Mulveyors on rubber tires.
- 1—3½ Yard Shovel and Back-Hoe.
- 1—3½ Yard Crawler Crane.
- Battery Supply Tractors, rubber tired.
- 1—Cantrell Air Compressor on rubber tires.
- 10—Air Compressors, 1 H.P. to 40 H.P.
- 2—Joy self propelled rubber tired compressors, 240 cu. ft.
- 2—Acme self propelled rubber tired compressors, 130 cu. ft.
- 40 Mine Pumps, all types.
- 1—Differential 40 Passenger Man-Trip Car.
- 6—MSA Rock Dusters.
- 2—Phillips, Carriers, 44" and 48" Ga.
- 1—Barber Greene self propelled Bucket Elevator. Pipe, Plastic, Steel, Transit, all sizes 1" to 6".
- 300 Mine Cars, drop bottom, 42" Ga.
- 90 Mine Cars, drop bottom, 44" ga.
- 50 Mine Cars, drop bottom, 48" Ga.
- 100 Mine Cars, 18" high, end dump, 44" Ga.
- 300 Mine Cars, end dump and drop bottom, 20" high, 48" Ga.
- 1—12 ton Mine Car Scale with Recorder.
- 15—Brown Fayo HKL and HG Car Spotters.
- 1—Brown Fayo Hydraulic Car Spotter.
- 1—12 ton Differential Slatte Lorry.
- Incline Hoists, 25 to 50 H.P.
- 1—Jeffrey 5' Aerodyne Fan, like new.
- 1—Jeffrey 6' Aerodyne Fan.
- 2—Storage Tanks, 4,000 Gallons.
- 2—Storage Tanks, 10,000 Gallons.
- 10,000 Five Gallon G. I. Cans, screw lids.
- 2,500 tons Relaying Rail, 25 lb., 30lb., 40lb., 50lb., 60lb., 70lb.
- 30—tons Copper—4/0 and 9 Section Trolley 1/0, 2/0, 4/0 Stranded.
- Thousands of feet of rubber covered three conductor cable. All sizes.
- 300 Transformers from 1 to 300 KVA, 110 to 13,000 primary volts.
- 400 Electric Motors, 3 to 250 H.P.
- Huge stock of Mine Supplies.
- 500 MSA Mine Lamps, Chargers, etc.
- 4—Mine Scales, 10 & 20 ton.
- 5—Truck Scales, 25 to 40 ton, late type.
- Mack & International tandem dump trucks.
- Thousands of other items.

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Marion rock bodies are

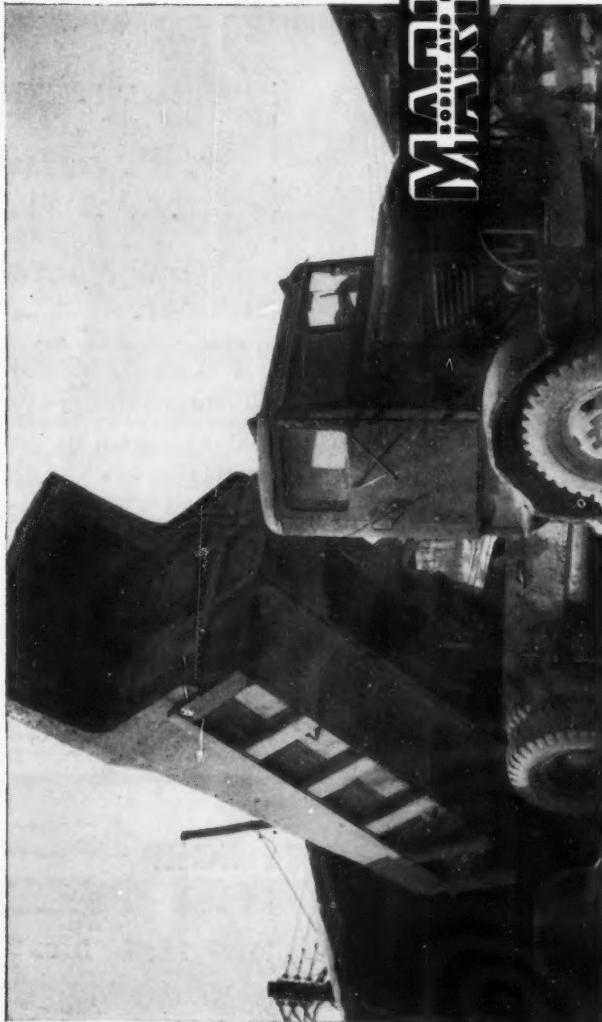
BUILT TO TAKE IT!

Fleet of Marions On The Job Regularly Since 1954 Provide Top Payload Performance With Minimum Downtime At Indiana Quarry

Seven Marions—two in service since 1948 and five since 1954—have been giving their owners top payload performance with minimum downtime.

Each unit hauls about 280 tons per day in 35 trips from the quarry to the crusher. The bodies are RB-50s, 5 cubic yards, with sideboards. The double arm underbody hoists are HD-8s.

Other Marion equipment in use at this ultra-modern quarry includes 5 trailer dumps, 5 tandem axle and 5 single axle units. The owners also use Marion equipment exclusively at their other two operations—a quarry and a coal mine. If you want more information about how rugged Marion rock bodies and heavy duty hoists can help your quarry operation, write direct or see your Marion Distributor.



MARION METAL PRODUCTS CO. Marion, Ohio, U.S.A.

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HEAVY EXCAVATION EQUIPMENT Draglines, Shovels, Cranes, Drills, Trucks

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9-W Bucyrus Erie Diesel Drag, 165', 12 yd.
7-W Bucyrus Erie Diesel Drag, 140', 7 yd.
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71-B.E. Crane with 160' boom.
625 Page Diesel Drag, 150', 10 yd.
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2400 Lima Diesel Drag, 130', 6 yd.
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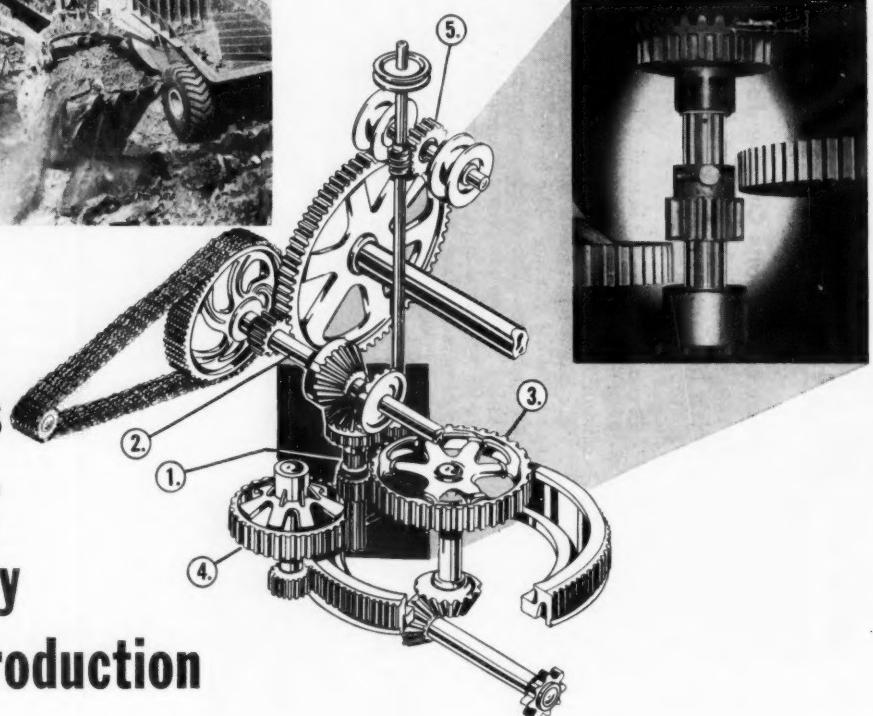
This Manitowoc Model 3000 shovel equipped with a 2½-yd. dipper loads out 2000 yards of hard sandstone per day on a Midwest road job. One of the most important factors contributing to the unit's output record is the Manitowoc "Power-flo" drive described below.

The key to Manitowoc's extra power is the key to top production

. . . and that extra power is provided through the *exclusive* Manitowoc "Power-flo" slide pinion arrangement that directs the full flow of engine power *only* to the function in operation. There are no power-robbing extra gears moving, even when not in operation (and gears that don't move don't wear out) . . . no complicated trains of gears that hold production down and keep maintenance costs up.

What arrangement could be simpler? As shown in the photograph above, the slide pinion itself is a single, sturdy shaft, spline-fitted with the necessary gears to engage, or disengage the desired function. The slide pinion (No. 1 on the drawing) is driven directly from the drive shaft (2) using only one set of clutches to drive the travel, swing and boom hoist.

With the slide pinion up, the power flows directly from the reversing clutches to the travel gear (3)



through the center pin and to the horizontal shaft in the carbody.

With the slide pinion down, the power flows directly to the swing shaft (4) containing the final drive pinion, which meshes with the carbody ring gear.

With the slide pinion in neutral, the reversing clutch is left free to operate the boom hoist (5) if an optional independent boom hoist is not used.

The result is *direct* power to every function . . . a feature found in *Manitowoc* cranes, draglines and shovels. The faster cycle, heavier lifts and bigger bites found in Manitowocs are the direct result of this simple and effective "Power-flo" design. That's why output is *measurably* higher with Manitowoc . . . that's why it will pay you to see your Manitowoc dealer for complete information on the rig best suited to your operation.

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How powering your excavator with the Cat D397 (Series D) from BECKWITH will give you an edge over competition . . .

engine power

BY CATERPILLAR

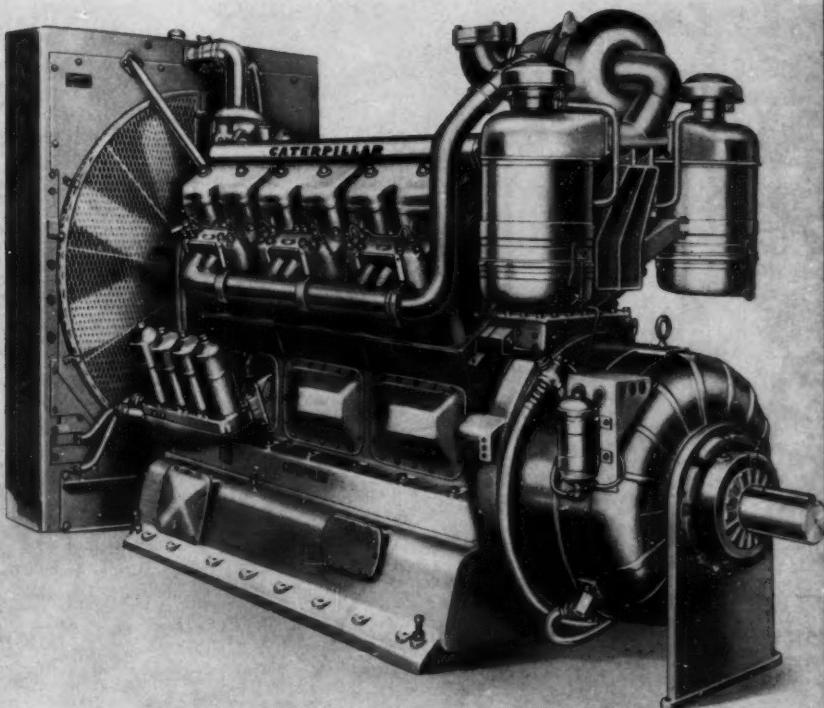
Main bearings are steel-backed aluminum alloy for better load capacity and better corrosion resistance.



Turbocharging the D397 gives higher horsepower per pound of engine weight, with operating economy and long life.



Large capacity elements filter all the oil, give longer engine life. The elements are accessible, and easily replaced.



The dependable Cat D397 Engine for excavators—deservedly popular in construction and strip mining—has been proved, improved and perfected. For original power and repowering, this diesel is the leader in the field because it features a "full power" fuel system, fast governor response for sudden load changes and it's built for long working life.

A dragline is only as productive as the power plant driving it. The Cat D397 (Series D) Engine is preferred "big diesel" power because through the years it has been constantly improved. This D397 (Series D) is mass-produced at Caterpillar's new Mossville, Illinois plant. This gives you higher engine quality for less money.

It means volume production of parts, too, with the same high-quality, low-cost result. Parts prices should always be reckoned in terms of the original investment. With purchase of a Cat Diesel Engine comes assurance of the best service and operating help and installation counsel in the industry. In Beckwith's territory alone, we have over 200 experienced servicemen and over 40 field service trucks on call 24 hours a day.

From 1950 to the present, Cat "V" Engines have powered the majority of big diesel excavators. Caterpillar policy of continual design improvement has resulted in over 100 major improvements in the D397 since that date. Repowering with Cat Diesels steps up production, for these power plants are free from delicate adjustments, they operate smoothly under a wide variety of loads . . . they are simple to service and easy to operate . . . they are easily started in any weather, and their dependability keeps equipment working.

So for money-saving repowering service, give Beckwith a call. One of our Caterpillar Engine Specialists will be happy to consult with you on the D397 or other dependable Cat engines to meet your repowering needs.

*Both CATERPILLAR and CAT are registered trade marks of Caterpillar Tractor Co.

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Allis-Chalmers HD-21 strips overburden for Iseman Bros.

Allis-Chalmers Tractors keep production rolling for Iseman Bros.

"Highway service is the best we have ever had on any equipment" . . . says Superintendent Paul Heilman



Paul Heilman, Superintendent,
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At Iseman Bros., New Bethlehem, as at other leading mines, efficient equipment holds the key to increased production—and profitable operations.

Bob Iseman and Superintendent Paul Heilman agree their Allis-Chalmers HD-21s can't be beat for dependable, day-after-day . . . continuous work.

Track life is more than satisfactory, according to Mr. Iseman. "We make substantial time and maintenance savings because it is never necessary to grease Allis-Chalmers rollers. Best of all—and most important—our A-C tractors have always been completely free of final drive troubles . . ."

" . . . and, when we need service, Highway is on the job fast," says Mr. Heilman. "Their A-C service is the best we have ever had."

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